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# *The* NATIONAL HORTICULTURAL MAGAZINE



JOURNAL OF THE AMERICAN HORTICULTURAL SOCIETY

OCTOBER, 1932

# The American Horticultural Society

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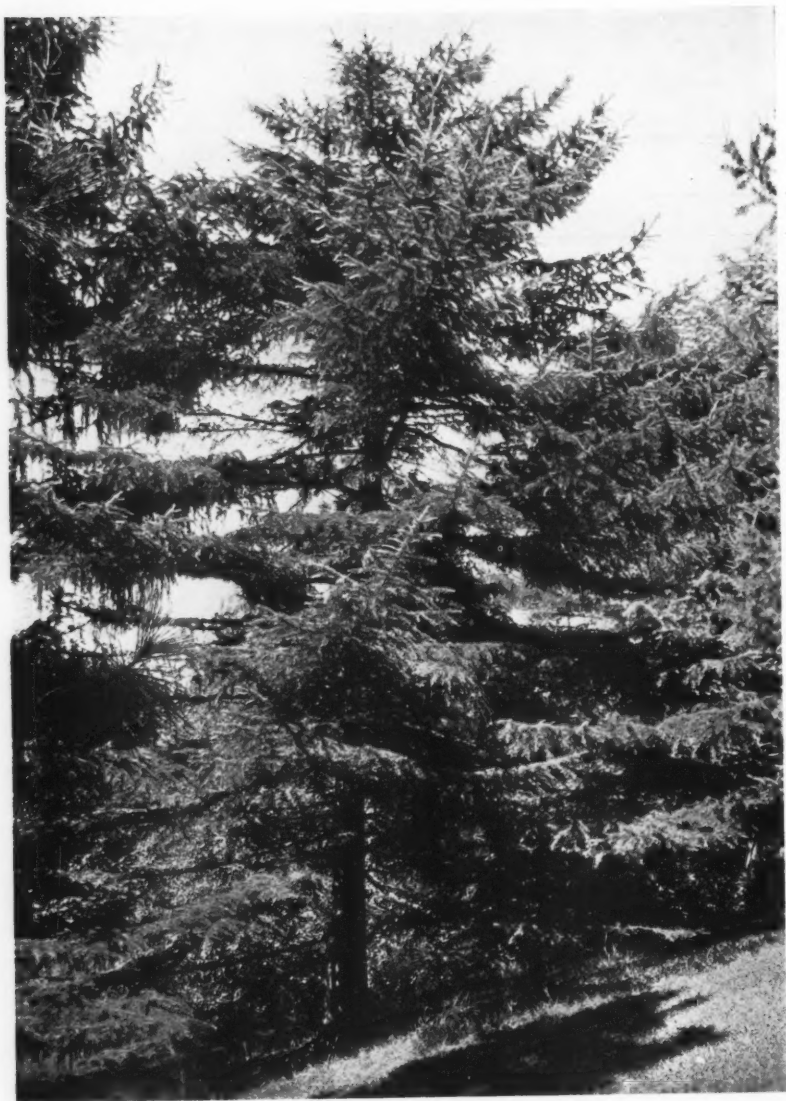
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*Larix Gmelini japonica*

## Our Deciduous Conifers

BY ARTHUR D. SLAVIN

Several of our most beautiful conifer groups are of the deciduous type. During the growing season, they present all of the beauty of the evergreen and when dormant they appear not unlike many of our regular shade trees. In the spring, their new growth appears rapidly as though, well satisfied with their winter rest, they desire to see what the coming season has in store for them. In the autumn, their foliage which turns to golden hues before falling makes them especially valuable for color ornamentation.

The uses to which they may be put are many. As they all attain a fair height, they make excellent specimen trees. Their habit is mostly pyramidal and symmetrical. Given a fair amount of space, much less than that required for most trees, they may be expected to develop without becoming unwieldy or overcrowding the lawn.

When planted among the evergreen cone-bearers, they never fail to offer a pleasant combination of color since their foliage is brighter and, in most cases, a lighter green than that of the former. They are especially useful for planting in place of the usual deciduous trees as they fulfill much the same purpose, but in a more interesting manner. They give the owner none of the troubles caused by the litter of fallen leaves, their foliage amounting to so little in bulk that it may be left on the ground where it will rot during the winter and add humus to the soil. If so desired, it may be raked up and later mixed with soil for the rock garden. In this capacity, it

makes an excellent acid compost for growing acid loving plants.

Strictly speaking, there are four genera of the deciduous type within our area. One of them, the Ginkgo, although it belongs to the Coniferae, will not be considered here because it is a broad leaf type and bears a drupe-like fruit rather than a cone.

Like much of our cultivated material, these species require some conditions for their success at variance with those of their native haunts. Several are known in the wild as bog plants, but I have yet to see any cultivated specimens doing well in wet ground. Good, fertile, well-drained soil will generally assure their success. A sandy loam is excellent, and with few exceptions, no care need be taken for their protection against adverse climatic conditions.

The first of these groups is the Larch. It is represented in this country by seven species, one hybrid, and five varieties. This genus is distinguished, in addition to its deciduous habit, by several distinct characters. The leaves are arranged in both solitary and clustered fashion. On the young branchlets, they are solitary; on the older growth, they are borne in fascicles on the ends of small spurs which appear laterally along the branches. The male flowers are solitary. The cones have persistent scales, that is, they do not disintegrate when mature. This last character is important in that it forms a means of differentiation between this and an-

other genus which is to be considered later.

*Larix Kaempferi*, or Japanese Larch, as it is called because it came from that country, was introduced into cultivation during the middle of the last century. With our present knowledge of this genus, we must give this species first honors as being the most valuable for ornamental work. It is entirely hardy and a fast grower. When young, it assumes a pyramidal habit, later developing a broad head not unlike that of many deciduous trees.

The branches of this tree are long and slender, spreading horizontally over a wide area. The bark is quite thick and dark brown, peeling off in plates which leave markings of red on the trunk. The branchlets are a distinguishing feature; when young they are covered with a bloom and scattered hairs; later they become yellowish red in color and, finally, the second year a lustrous tan or reddish brown. The foliage is light green and pale on the underside. In the autumn it turns to beautiful yellow. It is this feature coupled with its broad habit of growth, that marks it as so desirable an ornamental tree. The leaves are quite broad and measure from  $\frac{3}{4}$  to  $1\frac{3}{4}$  inches in length. They are ribbed on the underside and have two bands, one on either side of the rib, each of which is made up of five rows of stomata. The cones appear early in the season, grayish green at first, becoming light brown when mature. The largest specimen I have examined in this country is now fifty years old and 47 feet tall. Young trees, once established, may be expected to make an average growth of at least 12 inches a year.

The European Larch *Larix decidua* is the common species of that con-

tinental where it is used on a large scale for both reforestation and ornamental work. Trees, in this country, which reach a height of 60 feet may be considered good specimens. In the British Isles it is valued as a source of lumber and trees well over 100 feet in height have been recorded. Next to the Japanese Larch, it is the most valuable species of the genus commonly available in this country.

Although it sometimes develops an irregular top with age, it is generally seen as a tree of narrow pyramidal habit. The branches are short and dense, increasing in length with the age of the tree. The branchlets are glabrous and yellow, becoming gray the second year. The leaves are rather narrow, soft, and light green. The cones are much like those of *L. Kaempferi* except that the scales are not reflexed as in that species.

In 1908, a seedling of this species with distinctly upright habit was found growing in the nursery of the former Ellwanger & Barry Nursery Company, and was presented by them to the Park Bureau of Rochester. At that time it was 8 feet tall; present measurements indicate a height of 34 feet and a maximum breadth of about 16 feet. It is columnar-pyramidal in habit with almost erect branches which clothe the trunk from base to apex. I have named this form *Larix decidua pyramidalis*. (Conifers in Cultivation: Report of the Conifer Conference; Royal Horticultural Society, London, 1931.)

A cross between *L. Kaempferi* and *L. decidua* was first discovered in Scotland, about 1900, on the estate of the Duke of Atholl at Dunkeld. It was described by the famous Irish collector, Augustine Henry, and named *Larix eurolepis*. Since then, it



*Larix Kaempferi*

has been given the common name, "Dunkeld Larch," after the place where it was found. The seed parent is *L. Kaempferi*. That the cross is not difficult to make has been established by the fact that seed, taken from a specimen of the Japanese species growing in close proximity to several European Larch in Rochester, have produced intermediates between the two species. Reciprocal crosses have also occurred.

Specimens of this hybrid show a pyramidal outline with horizontal branches. The branchlets are yellowish and slightly pubescent. The

leaves are best recognized by their difference from the Japanese parent. They are shorter and narrower and have fewer rows of stomata on the underside. Their color is a darker green and less bloomy. The cone is conical and has the same number of scales as those of *L. Kaempferi*, except that they are not reflexed as in that species. The bracts which in *L. decidua* are longer than the scales, are shorter in this hybrid, and exceed the length of the scales only near the base of the cones.

English gardeners claim this tree to be more vigorous than either parent and free from the usual dis-

eases of the European Larch. Specimens, here, increase in height at a rate of about 12 inches per year.

*Larix laricina*, known as the Tamarack or American Larch, is the common species of this country. It is both a wet and dry land tree in its native habitat and is found in the northeastern and northcentral states and in southern Canada. In cultivation, it is most successful when grown in a light, loamy, well-drained soil. When growing in wet locations, it manages only to exist. Specimens 40 to 50 feet high are well developed trees.

It has a narrow spire-like habit formed by short, horizontal branches and a main stem extending the entire length of the tree. Its branchlets play an important part in its determination. They are slender, smooth, covered with a bloom, and yellowish-red which becomes reddish brown the second year. The leaves are blunt at the apex, bright green, and one-half to three-quarter inches in length. The cones are quite small, seldom measuring more than three-quarters of an inch in length, and have only 10 to 15 scales.

*Larix Gmelini*, previously known as (*L. dahurica*), and called the Dahurian Larch, is a species of doubtful hardness in this country. It is native in eastern Siberia. Although there are supposed to be several specimens in the pinetum at Durand Eastman Park in Rochester, their condition is such that a dependable determination cannot be made. It is even doubtful if they are the true thing.

There are two varieties of the species, both of which have wide geographical distribution from the type. The first, *Larix Gmelini* var. *Principis Rupprechtii* is found in northern China and in Korea. It is identical

with type, except for the cones, which are longer and have a greater number of scales. Unfortunately, the specimens which I have seen are not yet of sufficient size or age to bear cones.

This variety is of broad pyramidal habit with horizontal or slightly ascending branches. The branchlets are straw color to yellowish-red and with a few scattered hairs. The leaves are broad, glaucous on the underside, and a darker green than found in most of the other species. They average about  $1\frac{1}{8}$  inches in length. Specimens raised from seed, sent by Dr. Wilson from China in 1903, are now 16 feet tall. They are slow growing but appear entirely hardy.

The second variety, *Larix Gmelini* var. *japonica*, from Japan, has been known a longer time. It is hardy and does well in cultivation. A specimen which I have observed is now 38 years old and about 30 feet tall. It is easily distinguished from the other variety, which it closely resembles, by its dark red, hairy branchlets.

*Larix occidentalis* or, as the name implies, the Western Larch, is another American species but is more limited in its distribution than the Tamarack, its southern range being Oregon and Montana, and in the north, British Columbia. It is considered the largest growing member of the genus, attaining a height of almost 200 feet. It is not commonly cultivated in the East, and having seen but one specimen, I do not know how well it enjoys conditions other than those of its native environment. The cultivated specimen with which I am acquainted is a young plant about 4 feet tall and is, so far, doing nicely. The branchlets are orange-brown and covered





*Larix decidua pyramidalis*

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with hairs when young. The leaves are quite long, often measuring more than  $1\frac{1}{2}$  inches, very slender, sharp pointed, and pale green.

*Larix Potaninii* was introduced into this country by the late Dr. E. H. Wilson 28 years ago. In China, where it finds its native home, it is known as "Hung Sha," meaning Red Fir, from the characteristic cinnamon red bark on old trees. As all our trees in cultivation are too young to show this character, it has been given the common name, Chinese Larch. Not yet in general cultivation, I believe this tree will eventually rank among our best materials for ornamental purposes. It is described as a pyramidal tree with short horizontal branches, although in the specimens here they are quite long; this condition is undoubtedly due to the vigorous growth of the young trees. The branchlets are somewhat drooping, orange-brown, becoming a shiny brown the second year. The leaves make an easy means of determination: they are keeled on both sides and hence appear rectangular in cross-section; they are stout, sharp pointed, and shorter and broader than those of the other species. A specimen raised from the original batch of seed, sent from China by Dr. Wilson and now growing in Durand Eastman Park at Rochester, measures 21 feet in height.

The Siberian Larch, *Larix sibirica*, does quite well here. A tree 16 years old now measures 18 feet in height. It is found in parts of Russia and Siberia and is considered by some authorities to be a geographical form of the European Larch. It is, however, quite distinct from that species, its leaves being more deeply keeled, more slender, and longer. It is narrow pyramidal with short horizontal

or slightly ascending branches.

*Pseudolarix amabilis*, the Golden Larch, is a monotypic genus found in eastern China. In beauty it has no rival among the deciduous conifers but is seldom seen in this country, the specimens now present having been, for the most part, imported from Europe previous to the plant quarantine. The fact that it can be successfully grafted on the Larch if seed is not available, should induce the trade to grow it more freely. Although invariably described as a tree disliking limestone soil, it appears to do well in any light, loamy, well-drained soil. I have had the opportunity to observe for some years, three specimens obtained from the famous Veitch Nurseries of England in 1905. At that time they were two feet tall. Recent measurements of these same trees show them to be 25 to 32 feet in height.

This tree has a broad head, often almost equal in cross-section to its height. The branches are long, spreading, horizontal and irregularly whorled; towards the top they become quite ascending. It is distinct from the Larch in that it has clustered male flowers and cones whose scales become detached at maturity. The branchlets are of two kinds, as in the Larch, long terminal shoots and short lateral spurs. The long branchlets are reddish-brown and glaucous. The short spurs are club-like stubs, the age of which may be determined by the number of rings on the outside, each ring being the cushion-like base of a previous year's leaf cluster. The foliage is arranged in spirals or scattered along the terminal branchlets and in fascicles on the ends of the lateral spur shoots. The leaves are broader than those of the Larch and also longer, measuring from 1 to  $2\frac{3}{4}$



*Larix sibirica*



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*Pseudolarix amabilis*

inches in length. They are acuminate, slightly rounded on the surface, and keeled on the underside. The color is a beautiful, very soft, light green. On the underside there are two bands of stomata which impart a glaucous appearance to that part of

the leaf. In the early autumn the foliage turns bright yellow which remains until the leaves fall. It is this characteristic, along with the habit of the tree, that makes it so valuable an ornamental plant.

(To be continued)

## The Cherimoya—An Inca Fruit of Distinction

By KNOWLES A. RYERSON

The ultimate commercial value and place of some of the less known subtropical fruits is far from certain in so far as their culture in continental United States is concerned. But serious economic questions need not worry the amateur fruit grower, for whom a new interesting inhabitant of his garden may yield fruit not usually found in the marts, and which may add an exotic touch and flavor to his table. The limits of his small plot of ground can thus spread out to include a piece of the wide heated plains of India, a high mountain slope of Peru, a sunlit corner of Spain, or a bit of a Caribbean Isle. For that part of a garden which is seen is only a small part; the associations, the pictures called to mind, the experiences and folklore that cling about each tree or shrub are also part of every garden. Happily, these values are not dependent upon price per pound, yield per acre and consumer demand in the world markets.

To those living in the most southerly parts of our country there is given the opportunity for growing many of these exotic subtropical fruiting plants and even a few of the hardiest of the more strictly tropical types, some of which are highly ornamental, even if they are unable under our cooler winters to develop

fruits to pique our curiosity and taste.

Among the many such fruits that have been introduced and have demonstrated their worth the Cherimoya (*Ammona cherimola*) is one of the best. In fact it has many partisans who claim for it a position among the world's finest fruits. This opinion is voiced not only by travelers such as our own Mark Twain, whose terse description "Deliciousness itself" isn't overdrawn, but also by horticulturists familiar with the fruits of the world where grown at their best. Of course, as has been remarked by more than one enthusiast, "There are Cherimoyas—and Cherimoyas!" and the taste of an inferior fruit is an effective damper on future trials. The rich, almost aromatic, melting pulp, faintly suggestive of pineapple and strawberry, forms, when chilled, a natural sherbet, a delicacy prized in those parts of the world where the fruit is found in abundance, and a treat available for the table of those living in a mild enough climate.

It is a contribution from our Western Hemisphere. For a long time its origin was supposed by some to be the mountains of Central America, including possibly Mexico, while others held to the Andean region of Ecuador and Peru. In these latter countries

archeological excavations made in studying the ancient Inca civilization have revealed beautifully wrought pottery vessels in the form of the cherimoya. The careful exploration of that veteran enthusiastic plant hunter of Latin America, Wilson Popenoe, finally located what is now generally believed to be its native habitat in the high valley of Loja in southern Ecuador. From this point it spread northward. Explorers and travelers following the discovery of the Western World, carried it away with them and it has since become scattered throughout those regions of the world with a mild subtropical climate, particularly along the coastal regions of southern France, Algeria, Australia, India, Ceylon, Hawaii, Madeira and the Canary Islands and other distant points.

The Cherimoya belongs to the family Annonaceae, a family of forty to fifty genera; there are more than fifty species of the genus *Annona*, many of them familiarly known to the tropical traveler—the sugar apple (*Annona squamosa*); the Bullock's Heart (*Annona reticulata*); the Soursop or Corosol (*Annona muricata*), and others. A temperate zone relative, the pawpaw (*Asimina triloba*) is found native in eastern and central United States, especially well known to many a small boy.

The Cherimoya tree itself is a worthy ornamental entirely aside from the delectable fruit which it bears. It reaches a height of twenty-five feet on deep rich soil, while on poor soil twelve to fifteen feet is a maximum. Its spreading branches carry luxurious foliage throughout most of the year; being semideciduous, its old foliage drops shortly before the new leaves push out. The flowers are rather inconspicuous, small and triangular in appearance. The outer three petals

are about an inch long, the inner three minute and scalelike, greenish outside and yellow within. While it is far from striking, its spicy fragrance is delightful during a rather long blooming period.

The fruit is not blessed with an outward appearance calculated to win favor with those unacquainted with it. Dull to yellowish green in color, tinged at times with russet, it gives no hint of the fragrant white pulp within in which the dark brown or black seeds are imbedded. It has been compared in appearance by some to a tightly folded globe artichoke both for its color and its scalelike carpellary areas, which in some fruits are tuberculate, almost spiny in appearance. Then, too, it is very erratic as to its shape, the same tree producing fruits of a normal, broad, conical shape, others lop-sided or reniform without any regard to uniformity. In size it ranges from two inches up to six. This variation in size and shape may be related to faulty pollination. Altogether it is not a very tempting fruit to the eye of the uninitiated purchaser.

Selection in California has resulted in a number of named varieties such as Whaley, Deliciosa, and Booth, which are more uniform in habit and in production than the general run of seedlings, but even with these the crop isn't large. A heavy-producing, uniform variety awaits the work of the plant breeder whether he be a professional or an enthusiastic amateur. The fruits usually ripen during the spring months over a considerable period of time, though occasionally they mature in the fall.

Climatically, southern California more nearly resembles the native home of the Cherimoya than does either Florida or the Lower Rio Grande in Texas. Fairly high temperatures with low humidity during the dry





U. S. D. A.

*Cherimoya Forms as Grown in California*



Smithsonian Institution

*Inca Pottery Vessel Modelled after the Cherimoya*



U. S. D. A.

*Fruiting Tree of Cherimoya in Southern California*

season, and winter temperatures not going often below freezing furnish it a congenial home. It is about as hardy as the lemon. Where the temperature and humidity are too high, the quality of the fruit is affected. Under such conditions, the more tropical *Annona squamosa* or sugar apple is more at home. The latter makes a better showing as grown in Florida than the Cherimoya; but in California it finds the winters too severe.

Since the Cherimoya in southern Florida has been a shy bearer, attempts have been made to cross it with the more tropical sugar apple. The late E. W. Simmonds, formerly Superintendent of the Government Plant Introduction Garden at Coconut Grove produced a number of hybrids which are now beginning to fruit. Future work in this direction could be profitably carried on.

The Cherimoya isn't a temperamental tree to grow in one's garden. It

likes a well-drained soil, preferably a loam, but does well even on heavy black adobe. It responds to generous applications of organic matter and requires irrigation during the dry season. It stands some crowding in plantings, being found often in Mexico in thickets, but it does better with plenty of room. Little pruning is necessary; there are no fixed rules. In Guatemala it frequently receives heavy heading back but this hardly seems a necessary or desirable practice. Moderation in pruning practice is in line with experience with many other fruit trees.

A fruit whose culture has continued down through the centuries since Inca days and which is today one of the popular fruits throughout the areas from Mexico to Chile has some claims for attention in the garden of the connoisseur, a claim that is being recognized increasingly and with gratification.

## The A B C's of Rock Gardening—II

By ALICE MINER

The first step in constructing a rock garden is to have all the materials within easy reach. There should be available stout tools, a soft rubber pad—kneeling on rough stones being very painful — a length of garden hose, stones sorted as to size and type, small sticks of various sizes to use for "chinking" and a large amount of soil mixture.

### SOIL FOR ROCK GARDENS

This soil mixture is the most important single item, location and construction running it a close second. It has been found that the best growing medium for the majority of alpine plants is a well mixed soil composed of good garden loam; humus, which may be either leaf mold or completely rotted manure; number two torpedo sand; and fine stone chips, which may be granite or limestone, in approximately equal proportions.

For special purposes this mixture may be varied by adding a greater or less amount of any ingredient. For example, a moraine which is a venture for experienced gardeners is made almost entirely of stone chips with a minimum of soil. The acid soil loving group requires a medium composed of granite chips, leaf mold, sand and plenty of peat.

We, in the lime region of the Middle West, are fortunate in that about 90% of the Alpines will thrive in a lime soil. Of course we covet the acid lovers but only with great trouble can we make them live at all and then only in a half-hearted fashion.

### GETTING STARTED

Two types of rock garden construction will be discussed in this section; building on a flat area and on a natural slope. Since building on a flat area utilizes the fundamentals of construction we will begin with that type.

You are perhaps wondering why a garden hose should be included in the equipment. I have found that nothing takes its place in laying out the boundaries of any garden. It can be so easily shaped into a flowing line and is heavy enough to stay in place.

The back of the garden presumably being adjacent to the boundary, the hose is used to fix the limits of the area in the front. Experiment until the line of the proposed edges pleases you. Do not be too economical in the width allowance. You will soon learn that the retaining wall at the back will slope inward, robbing you of a foot or more of space. The area just in front of the wall to be used for background planting will take another two feet and perhaps three in spots.

### DIG DEEP FOR DRAINAGE

Having decided on the exact area, unless the original soil is very light and porous, drainage must be put in. To accomplish this, dig out the soil to from six to twelve inches and fill this space with coarse cinders, gravel, broken cement or mortar rubble. The heavier the soil the deeper the drainage should be. In a reasonably good loam, six inches is sufficient and this soil may be used in the mixture, but a soil that is at all heavy should be used elsewhere if at all, certainly not in the rock garden.

You may feel that this point is being over-emphasized but when we built the first section of our own rock garden we felt that it was non-essential, even though our soil was heavy clay. We have since greatly regretted this assumption of knowledge and I want to be certain that you do not make the same mistake.

If sod was removed from the area of the rock garden to-be, turn it upside down on top of the drainage material. If no sod is available use a layer of coarse strawy manure from which all possibility of further heat is gone. This will prevent loss of the special soil mixture by sifting down into the coarse rubble.

#### NOW WE ARE READY TO BUILD

At last the first stones may be laid and in choosing them, resist the urge to use all the best ones first or the part of the garden you build last will be pathetic. To create in your mind a picture of the final result let me say that the effect you want to produce will bear a similarity to a crazy stairway; the edging stones used to hold up the dirt will be the risers and the space for plant material, the treads. No two risers will be exactly the same height and no two treads the same size or shape. In discussing the construction, the low retaining walls or rows of edging stones will be referred to as "risers." The treads I shall refer to as "ledges" or "levels," although in rock gardening literature you will find them also called "terraces," "beds," or "soil pockets."

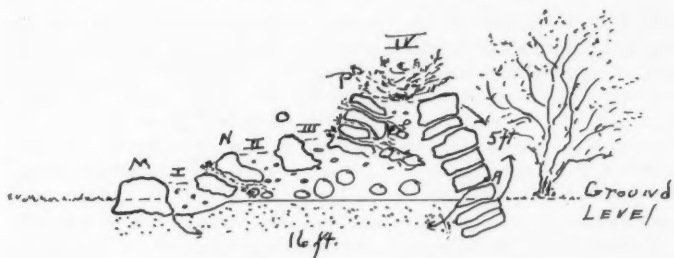
Starting at one end of the garden and on the line you have made with the hose, place a continuous row of stones each on its largest base and partly beneath the surface of the ground. Use stones of similar type together. If you are obliged to mix both granite and limestone, or strati-

fied and boulder types in the same garden, make the transition as gradual and inconspicuous as possible.

The stones must fit closely together or the dirt will be lost through the crevices. If stones of the rounded boulder type are used, there will be V-shaped openings between them. These must be carefully "chinked" with smaller stones or the soil will readily wash away. All stones throughout the construction must be firmly set as it will be necessary to walk about on them constantly when planting and cultivating. I was not as meticulous in this respect in the early days as I should have been and once, at a very critical moment, a stone quietly turned over and tipped me into the pool, to the great delight of my children.

After several feet of this edge are in place stand away and look at it critically. Ask yourself these two questions: "Does it look as if it had been cut out with a pinking iron?" "Are the rocks so placed as to give an interesting variety in size and shape?" If you are not pleased with your first attempt change an occasional stone for one of another size. Try pushing one in here or pulling another out a trifle there. This will frequently change the contour sufficiently so that no radical re-laying will be necessary.

After ten or twelve feet of this front riser have been put in place it is well to start on the back retaining wall. This wall, as has been said, may be made of any of a variety of materials—old bricks, building tile, cement blocks, broken up cement sidewalks or, of course, stone itself, if you have enough available. When we built our first rock border we expected to use for the retaining wall some of our seemingly huge pile of rocks. As soon as we had built only a small sec-



PLAN VII  
VERTICAL CROSS SECTION AT POINT X IN PLAN VIII.

tion of the garden it became apparent that if we used these stones for the wall there would not be enough for the garden. What to do! Then as a gift from heaven, a dump wagon with a load of broken up sidewalks went by on its way to the village trash heap. I tore after it in such a hurry that I had no time to explain my sudden departure. If the vehicle had not been horse drawn it would have escaped. Before my astonished helpers could recover, the erstwhile sidewalks were being dumped on the parkway and they soon became a satisfactory retaining wall, which still stands after all these years of stress and storm.

However, for ease in drawing and writing, let us assume the wall to be built of flat stones. This is ideal for the purpose and presents a pleasant appearance to a neighbor, should it not be completely concealed by shrubbery.

The first course of the retaining wall should be well beneath the ground level and tilted so that the inner edge of each stone is lower than the back edge. If the material is flat and smooth no dirt will be necessary between the courses, but if the surfaces are uneven, enough soil should be used to bed them firmly.

The second course, as well as each

succeeding one, should also be tilted toward the front of the garden and be placed slightly ahead of the one beneath. This makes a wall which leans away from the perpendicular and toward the miniature hillside which is being created.

I suggest that this back wall be built in the beginning only as high as the top of the front riser and afterward carried up as each riser is completed.

The retaining wall has now been built to point "A" and the front riser to point "M." (See plan VII.) The next step is to pack the intervening space very solidly with the soil mixture. During the entire process any pieces of stone too small for building, or mortar rubble may be scattered through the soil as it is put in place.

In order to be certain that the soil is thoroughly packed between and around the stones I keep on hand what are known in our family as "chinking sticks." These are merely small pieces of wood of varying sizes, my favorites being those  $\frac{1}{2} \times 1$  inch,  $1 \times 1$  inch,  $1 \times 2$  inches and about 15 inches long. These shapes will fit into almost any crevice between the rocks. "Chinking" is a fine job when you are too tired to do anything else but it must be done as each level is completed.

This part of the work is monotonous and dull but since it is so extremely necessary, let no one accuse you of loafing, when he sees you sitting still poking at the dirt.

The picture which now meets the eye will be reproduced repeatedly until the construction is finished. You have the same condition as in the beginning, a flat surface, only this time raised above the ground level by the front riser and the first course of the retaining wall. This may be likened to the bottom layer of a cake and you are now ready for the next layer.

At varying distances back from the first riser, place a second row of stones. In constructing the riser it will be found that different sizes of stones will need to be set at varying depths beneath the surface, and to that end it will be necessary to dig out some of the recently packed dirt. This can be thrown back of the riser being built so all the labor is not lost but I have never found any way to avoid doing it.

At some points the second riser should branch away from the first and should be so laid as to form small levels or ledges of irregular shapes. They should not be of uniform size or height from the ground. The choice and grouping of the stones will determine the heights and sizes of these levels. If you will recall a mountain side, the broad meadows are most frequently at the base and the narrow, rocky ledges nearer the summit, which furnishes us with an excellent model.

The back retaining wall should now be built up level with the top of the second series of risers and the intervening space again packed solidly with the soil mixture. When I say solidly I mean just that and it will grieve you sorely to see that apparently inexhaustible pile of mixed soil melt

away, but better not build at all unless the garden is constructed for permanence. Whatever the method of building, one result must be accomplished, the stones placed to form the risers for the different levels must present a solid front to their enemy, rain. A pile of dirt with stones stuck in here and there is not a rock garden and will not stand the downpours that are dangerous enough to the best of construction.

One of my friends called me up one day after a bad storm. In great distress she wailed: "My lovely garden just finished and planted, is washed away and all I have left is stones." This was, of course, due to faulty construction, the sort that leaves a profusion of openings between the rocks, and the soil poorly packed, so that the rain can conveniently wash away the soil and leave bare rocks and roots behind.

#### BUILD FOR YOUR PLANTS

An ideal worth striving for is that the builder shall know something of the habits and desires of the plants he plans to use before he starts to build. For instance, many varieties of large growing trailers such as the creeping thymes, arabis, *Phlox subulata* and *Saponaria ocymoides* crave broad ledges and reasonably large rocks over which to grow. The sempervivums, excrusted saxifrages, the smaller campanulas, dianthus and countless others delight in tight crevices from which they best display their charms. Among those desiring shade in varying degrees are primulas, corydalis, ramondias and mossy saxifrages. Knowledge of the preferences of specific plants enables the builder to provide the locations that will be most suitable for them and may save him from the embarrassment of possessing an utterly incom-



patible combination of plants and garden when the time for planting comes.

#### THE GARDEN BEGINS TO ASSUME FORM

As the building proceeds each time a new level is completed another riser is added. This will be noted in Plan VII where risers N, M, O, P create levels 1, 2, 3 and 4.

It will soon become obvious to the builder that the wider the space allotted the higher the garden must be at the back. For example, if the distance between the front riser and the retaining wall is only  $2\frac{1}{2}$  feet there will not be room for more than two levels and the retaining wall will be low. As the width increases there will be more levels and the retaining wall correspondingly higher.

Each garden will reflect the ingenuity of its builder, though the type of stones and the location will play a part in the result.

#### GENERAL SUGGESTIONS

A few general suggestions may not come amiss. Avoid parallelism, for rows of stones as regular as a company of wooden soldiers may be successful for masonry construction, but here they are utterly out of place. Even worse are symmetrical curves so eminently suitable to the scallops on an old fashioned petticoat. The lines of the risers should be pleasingly irregular and follow no set pattern.

It is in this phase of the construction that the artistic ability of the builder is put to the acid test. If great difficulty is encountered, visit if possible a well designed rock garden, study it thoroughly, and try again. Try to put the most attractive side of each stone toward the front even though you may occasionally break the rule of always placing a rock on

its largest base. Don't be afraid to pull a section down and re-do it. The garden should have simple pleasing lines before a single plant is put in. If it hasn't, laden your heart, tear it apart, and begin again.

It is less work to rebuild before you plant than after, and if the garden doesn't satisfy you without plants, it never will with them. Don't try to comfort yourself with the thought that the plants will adequately cover bad construction, they may only emphasize it.

Again I repeat, build and rebuild until you begin to understand the possibilities of combining stones. Only by experimenting first with this arrangement and then with that will their potentialities be realized.

#### A VERTICAL CROSS SECTION

A cross section at any point in the garden should resemble Plan VII in certain details. The dotted line in Plan VIII is the point where this cross section is supposedly made.

Here is shown the space utilized for drainage; the inward tilt of the stones in the back retaining wall; the use of a shrubbery background, both behind the retaining wall and on the level just in front of the top of it; and possible uses of different sizes and shapes of stones utilized in constructing the series of risers and levels. The distribution of stony material through the soil and the way the roots grow around it may be clearly seen.

This arrangement of stones forming the risers in Plan VII is only one of the many ways such stones may be used. The abrupt wall-like riser P may be built to hold up levels 2 or 3 in different sections of the garden and will be most effective if occasionally used as a section of the front riser. If Plans VII and IX are compared, it

will be noted that the high and low risers are shown in a different relation to the garden. This was done deliberately to make the foregoing clear.

#### A PLAN IN THE FLAT

If a giant hand could flatten the garden so that all the ledges were level with the ground, it would bear a close resemblance to plan VIII.

The dotted line indicates the point chosen for the cross section (Plan VII). The levels and rocks are numbered and lettered alike in the two plans. In the balance of the plan the height of the levels is indicated A, B, C, D, and E, with E the highest level. The algebraic signs + and — are used to indicate gradations in the heights of the levels. In each gradation the size of the wall-like sections determines the height.

It will be seen that the ledges are not long narrow strips more or less parallel to each other but are broken into small sections. This gives a pleasing effect — makes for ease in grouping the different varieties of plants as well as providing special soil requirements for temperamental plants.

#### BUILDING ON A SLOPE

Certain fundamentals of construction must be adhered to no matter what type of garden is built or what location is chosen for it. There always must be adequate drainage, a gritty soil mixture of generous depth, and firmly set stones. A slope, however, presents fewer difficulties to the beginner than almost any other type of location and lucky is he who has one.

If the soil on the slope is of a reasonably good quality, the special arrangements for drainage will not be necessary, though it will be wise to

spade in a small amount of a mixture of equal quantities of sand, stone chips and leaf mold to a generous depth.

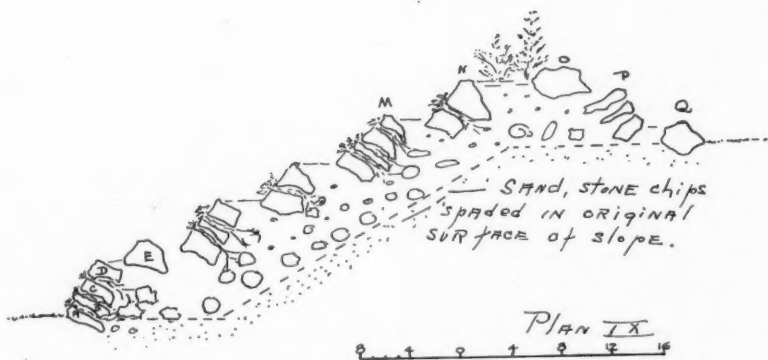
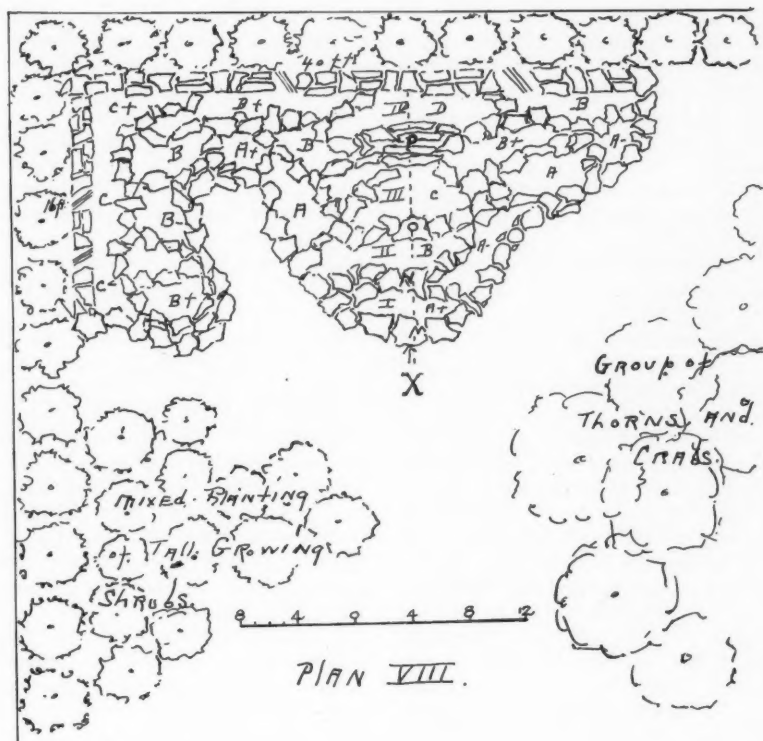
For a heavy soil large quantities of torpedo sand and stone chips should be spaded in. This will give an adequately gritty sub-soil. Under such conditions the whole garden should be constructed well above the level of the original slope in order to insure sufficient depth of the special soil mixture.

In building this small hillside at the point chosen at random for the cross section the plan would be as follows:

On Plan IX the stone A should be firmly bedded and the soil mixture firmly packed from it to the slope. Stone B is then bedded, a few pebbles in the soil will prevent the weight of this stone pressing the dirt into a solid layer so thin as leaves no room for roots. Again fill back to the soil. Stones C and D are similarly placed and the soil filled in.

Having decided on the width of level I and this depends on steepness of the structure, stone B is bedded and the good soil tamped and chinked thoroughly. Continue the risers until the top is reached. At this point the garden is carried higher than the top and the plan illustrates the method of building it up and then down again to the ground level. When stone N is laid and the soil filled in—pile it high enough and back slightly so as to be able to bed stone O. The position of Q can then be determined as the width of this section will be in proportion to the height at O. The silhouette of the top of the garden should be of varying heights. The construction stopping at the top of the slope in some points and carried higher in others.

Natural slopes are rare in the average suburban yard but some few of



VERTICAL CROSS SECTION CHOSEN AT RANDOM  
IN GARDEN BUILT ON A SLOPE.

you may be the possessors of a lawn having two levels connected by a grassy terrace. A narrow oblong area of this type is worthy of study for it may be made into a fascinating garden if all the possibilities are fairly realized. If such a problem were presented to me I should suggest a treatment similar in a general way to Plan X.

If this terrace is near a boundary line, arrangements for a background are not difficult. However, if it lies in an open lawn space it will not be feasible to use large shrubs as a background and carefully planned shrubbery groupings at the sides must be substituted to frame the garden. This planting will become a part of that used on the lot boundaries.

In Plan X, I have suggested an asymmetric treatment. On the right, a low planting in front of the rock garden, which will continue gradually upward employing taller varieties and merge eventually with the boundary planting. On the same side the garden is begun at some distance from the base of the terrace at point A and carried higher than the lawn level as described in Plan IX, at point B. There will be a greater number of levels in this section which will add needed variety in contour.

The edging stones from the first riser from point A to M form simple curves as too much irregularity here will give a choppy effect.

On the left side, the garden is started only a few feet from the base of the slope and the shrubbery planting starts on the second level. From here it continues upward to the right on the third level of the rock garden and then gradually goes to the left to the boundary planting. The levels near the top of the terrace are carried to the left behind this planting.

An arrangement of shrubs such as

is used at the sides will conceal parts of the garden so that the observer cannot see it all at first glance for the element of surprise is a charming feature in any landscape garden.

The placing of low growing evergreens at carefully selected points near the top will add to the beauty of the garden and give an illusion of a background.

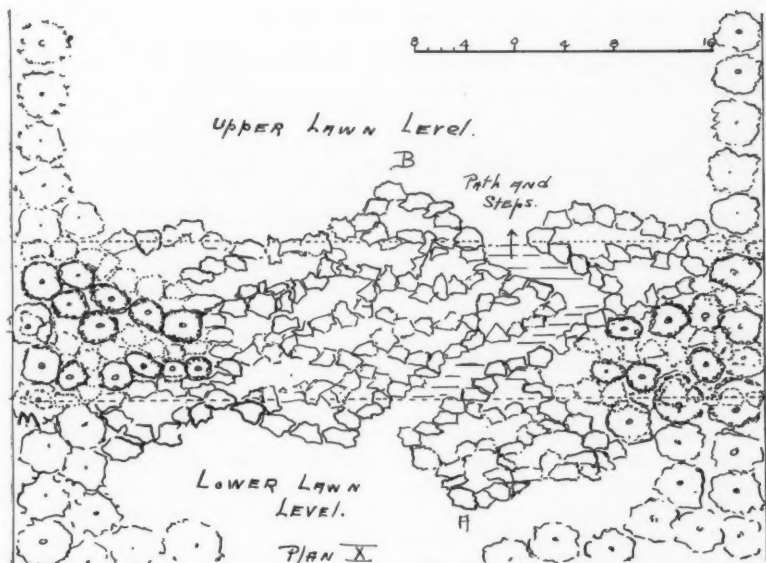
For a garden in this location I should choose if possible, stratified limestone rather than the boulders. Stones of this type will more nearly resemble a natural rocky outcrop.

#### BACKGROUNDS FOR PRIVACY

A frequent criticism of this widespread epidemic of rock garden building is that these gardens are unrelated to their setting. In many cases this criticism is justified but I believe that it is possible with sufficient time and thought to fit them into almost any garden plan.

A small rock border such as is suggested in Plans II or III can be tied to the landscape by heavy planting behind it and well selected material at the top. This border may be actually so well concealed by shrubbery planting that its presence is unsuspected or at least not obvious.

Now if the rock garden is perched on the lawn, in a parkway or in the middle of a flower border it well deserves adverse comment but if it can be located in some such fashion as is suggested in Plans II or III and by careful planting made an integral part of the garden plan, this criticism is fully met. It will be noted that in Plans IV and V every effort has been made to seclude the garden completely from the outside world. By allowing a generous planting space just behind the dry wall in Plan IV in which a judicious use is made of dwarf evergreens, low growing shrubs, such as



*Daphne cneorum* and the genistas, only tantalizing glimpses of the garden beyond will be possible.

This type of garden need not be especially related to the rest of the landscape, for when enclosed by dense plantings it is complete in itself.

At the risk of too often repeating myself, I say again, in the zeal to increase the garden space, don't forget a generous allowance for background in your garden budget.

#### THE TIME TO BUILD

Whether the garden should be built in the spring or in the fall is a disputed question. I believe that the ideal way is to start the plants from seed in the spring and build the garden in the fall. All during the summer months you will have opportunity to study plants in other gardens and to read at length concerning the plants you are raising. Rocks may be col-

lected when motoring and a large quantity of the soil mixture made ready.

Then in September or October build the garden and let it stand unplanted all winter. Early the following spring the garden should be carefully inspected, hollows filled in, and faulty construction, if any, repaired before the plants from the seed beds are put in place.

#### THE IMPORTANCE OF SCALE IN THE GARDEN

This essential point in rock gardening is often disregarded, the plant material and the rocks being entirely out of proportion to each other and to the setting.

In my early experience, such a thing as scale was a thing I never thought of, but a trip to the western mountains about ten years ago opened my eyes to the possibilities of a better

relation between the rocks and plant material.

In passing I may say that after that trip the garden certainly underwent a transformation and even the little stream was torn out and completely rebuilt in spite of the fact that it was laid in concrete.

The incidents that brought about our full realization of scale in our garden came about in this way. The lack of evergreens in the garden became very apparent to me as I rode through the mountains; so the following fall we brought from the North woods small specimens of pine, arbor vitae, spruce, and hemlock. Tucked here and there, they delighted us beyond words. They seemed at once to bring all parts of the garden into harmonious relation.

All was well until a year later when we returned from our summer vacation. The little trees supremely pleased with their location and soil outdid themselves in growth and threw the garden completely out of scale. It was a bitter blow for out

they had to come. They are now large trees and are an effective part of the background. Then and there we realized the importance of having rocks, plants, and trees in scale. The need for a type of tree that would remain small became obvious, and so began our quest for dwarf evergreens, about which I shall write later.

A little game I have often played may help some of you. Imagine for a moment that the garden is suddenly magnified to mountain size. Could the tiny ravine in your garden become a gorge? Will this carefully planned group of small trees become a forest on the mountain side? Will the tiny stream be a river of too great proportions? You will never have any glaring errors in scale if your construction and garden can meet this test.

The matter of scale is not such a difficult problem in the construction of a dry wall. Perhaps this type of garden will fit into your plan more easily, so we shall take that up next.

*(To be continued)*



## Japanese Potted Trees

BY BUNKIO MATSUKI

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From The Brooklyn Botanic Garden Record*

The vogue for cultivating potted trees in Japan may be traced back to the early Fujiwara period (about 1000 A. D.). In English books these plants are usually referred to as "dwarf trees," but this term is never used in Japan as they are always given the name of "potted tree"—the older word used is *Hachinoki*, and the more modern one *Bonsai*.

The first mention of *Hachinoki* appears in the Ashikaga dramatized literature; an incident in the Kamakura era in the village of Sano, in North Japan, is depicted in a well-known "No play." On one stormy, snowy night Hojo Tokijori, the Regent of the Shogun, in disguise as a Buddhist monk, asked for shelter in the house of a poor farmer. The owner at first refused because of his poverty, but the traveling monk insisted on shelter for one night. Alas, there was no wood to burn in order to combat the cold except three potted dwarf trees—pine, plum and cherry. The poor farmer sacrificed these for the comfort of his honored guest. The host turned out to be Genzaemon Sano, a famous Samurai, who was ruined and sunken in the world on account of being dispossessed of his property during his absence on war service by a selfish relative. The traveling monk departed the next morning without disclosing his identity. However, as soon as he reached Kamakura he summoned Sano and restored to him all his former estates and, in addition, three districts bearing the names of pine, plum and cherry. This lyric

drama is still played far and wide in Japan, and many Japanese feel a romantic glamor in keeping *Hachinoki* in their possession.

The Japanese people delight in landscape gardens, and many large ones have been developed in various parts of Japan. Potted trees also give to the Japanese the pleasure of a miniature landscape panorama, and beautiful trained specimens create a similitude of an ancient arbor. There are four seasons of the year in which potted trees are especially in evidence. In various cities in Japan, dealers display many hundreds of specimens in vast gardens for their clients to select from. Collectors of the plants are very numerous, among them being men of rank and letters, politicians, merchants and others. Some collections are extremely valuable, frequently being sold for many thousands of dollars.

The varieties of trees for potted specimens are very numerous. Many species of pine, cedar, hiba, oak, plum, wisteria, maple, cherry, ginkgo, azalea, ivy, bamboo, and shrubs are very popular. In Tokyo and other places there are often beautiful exhibitions of potted plants, for well-known collectors send some of their prized specimens. The writer once enjoyed seeing an exhibit in autumn in Tokyo where more than two hundred specimens were displayed. One of the most artistic and exquisite was a rectangular shallow jardiniere, not larger than fourteen by eight inches, in which there were planted five dwarf



*All photographs—Brooklyn Botanic Garden*

*Neagari, or Uprooted Dwarf Pine*



*Twenty-five-year-old Dwarf Pine*



*Dwarf Azalea of the Kurume Type*



*Dwarf Azalea of the Satsuki Group*

ginkgo trees not more than a foot in height. The gnarled trunks and boughs suggested every appearance of ancient arbors while the foliage, the size of clover leaves, turning into various hues of brilliant yellow enhanced the specimen suggesting glimpses of perfect autumnal ginkgo groves. Another jardinier which still lingers in my memory was a dwarf ivy of five shades, known as *Goshikitsuta*. Its tiny foliage gave gorgeous autumnal hues from various yellows to brilliant crimson.

#### HOW TO TRAIN DWARF TREES

There are various methods of training plants in order to give to them the appearance of ancient arbors. Japan is rich in mountains and hills with abundant trees and shrubs growing wild. Often those who train specimens roam over certain areas of mountains and ravines which are little accessible to ordinary travelers in search of suitable young trees, and begin the training of the trees in their natural habitat. Later the undesired portions of the shoot are cut away and the entire plant is dug up. These uprooted plants are known as *Neagari*, or uprooted dwarf trees. The dwarf pine in the first illustration is an example. In some cases a small artistically shaped stone is placed so that the partly bent trunk and root embrace it. Spring and autumn are the most suitable seasons in which to begin the training of the trees, and they are kept for a year or two in their natural soil, the trainer paying many a visit to the site.

Some growers have a large space in their gardens in which they train the trees in pots or in the soil. The trunks and branches must be twisted in order to produce the desired

gnarled effect. The method varies according to the kind of trees, but in the case of the pine and hiba, several longitudinal cuts about two and a half inches in length are made around the column of the trunk or branch. The stem is then gently twisted and tied with soft copper wire or better, with wisteria twine. It requires great skill to make the scar as invisible as possible, for the value of the specimen is greatly lowered if the scars are very pronounced.

The operation of the trees must be performed during the early forenoon, for it is believed that at that time there is less likelihood of the stem or branch breaking off. In order to facilitate the work, the trainer applies a solution of *Funori*, a Japanese glue, made from the marine alga, *Gloiopeltis furcata*. This softens the stems, makes them more tender, and thus facilitates the twisting with less chance of breaking the trunks and branches.

The trees are planted in jardiniers of various types. Frequently these are extremely valuable. Along with the trees, various stones are placed increasing the artistic value. If the stone has a very fine patina its value is naturally much greater.

The plants are cultivated in earthen pots and can easily be moved about when it is desired to observe them. It is better to keep them in porous unglazed pottery (*Sayaki* pots) of a suitable size so that they can be transferred to the choice valuable pot when the occasion arises. The soil is changed yearly in the spring, and care must be taken not to overfertilize it. A small portion of manure is mixed with ordinary loam. Pebbles or broken brick are placed over the drainage holes in order to facilitate the drainage.





*Combination of Elm, Maple and Azalea*



*Dwarf Azalea after Flowering*

Compare Page 287



*Dwarf Azalea after Flowering*

Compare Page 287



*Sixty-year-old Japanese White Oak*



*Dwarf Japanese White Oak*



*Japanese Cypress, Uprooted Style*





*Old Specimen, Japanese Cypress*

## Saxifrage Notes—III

BY FLORENS DEBEVOISE

### KABSCHIA SECTION

This section contains valuable and fascinating subjects for the rock garden. Farrer speaks of them as the "jewels of their race" and when their charming blooms appear in early spring after a long dull winter, the effect is dazzling. Some species form dense cushions of spiny leaves and others are tightly clustered little mounds of rosetted foliage in varying shades of glaucous green through grey and silvery blue. Compared to the size of the plants the flowers are large, produced singly or in cluster heads on stems from two to four inches.

There are some twenty recognized species; the varieties and hybrids are numerous. They are natives of the European Alps, the Caucasus and the Himalayas. The "Engleria" Group was included in the Kabschia Section by Engler in 1867, but these were separated and formed into another section by Sundermann in 1915 which lessens the confusion in classification.

When soil and situation, more particularly the latter, are to their liking, the Kabschias present few difficulties. I wish to stress, however, one fact, mentioned in the January issue of the NATIONAL HORTICULTURAL MAGAZINE, in regard to the cultivation of all alpine which applies particularly to members of the Saxifraga family. Methods of cultivation used in oceanic climates cannot be followed with success in the continental climate which prevails throughout the greater portion of the United States. Our climatic conditions with the exception of the extreme northwestern section of the country are totally dissimilar to

those in England. Many foreign writers on gardening subjects advise planting Kabschia Saxifraga in the moraine, and, as many moraines in English rock gardens are situated in full sun, these plants no doubt thrive in situations of the sort in the English climate. In our continental climate, however, the atmosphere does not contain sufficient moisture to offset the excessive amount of drainage provided by moraine treatment when in full sun. Unless a sufficient amount of water and partial shade is provided, Saxifraga of the Encrusted varieties as well as the Kabschia Group are apt to dry out or be burned during July and August. A cool shady situation best suits their needs.

The soil should consist of one-third leaf mould; to this add one-third good light garden loam thoroughly mixed with peat or chopped sphagnum moss, preferably the latter, and one-third stone chips and sand. With a few exceptions the Kabschias enjoy lime which may be used in the form of crushed oyster or egg shells. These help to keep the soil porous. Another point which should be stressed is that these as well as all other types of Saxifraga should be planted firmly on a sloping surface and with plenty of stone chips and sand worked around their crowns. The stones retain moisture and sand stimulates root action.

As with all alpine from high elevations, the Kabschias enjoy a top dressing two or three times a year. This should consist of a mixture of leaf soil, sand, and stone chips.

Propagation is best effected just after spring bloom is over, or the last

of September if the new plants are to be kept in a frame or greenhouse during the winter. Cuttings should be taken as it is risky to divide the plants. These cuttings should be planted in a gritty compost in pans or flats with a one-inch layer of clean sharp sand on the top. They should be left in a close frame and sprayed often enough to keep the soil moist, but not too wet. When well rooted the pans may be removed to a more airy but half shady space where they may remain for the winter. It is best not to transplant from the pans until spring. A collection of these plants in pans with weathered stones placed between the different types makes a charming display in the greenhouse or alpine house during January and February.

In the rock garden a light covering of salt hay during the winter is all that is necessary. This will protect the plants from drying frosty winds and prevent the sun from burning the leaves when they are frozen.

It would be impossible to mention all the species and hybrids in this section. Many of those mentioned are tried and true and may be obtained from the nurseries in this country.

#### S. ARETIOIDES

This is a minute plant from the Pyrenees. It forms a low compact mound of rosettes. The foliage is composed of short glaucous leaves having a cartilaginous margin. The two-inch stems are covered with hairs and branch at the top, bearing from three to five golden yellow flowers. *Aretioides* has been grown in gardens since 1826. It crosses freely with other members of its tribe and many valuable hybrids have resulted.

#### S. BORYI

*S. Boryi* is a neat little gem from the upper regions of Mt. Taygetus in

Greece. It is supposed to be synonymous with its Italian neighbor, *S. marginata*, but in cultivation is later to flower and the stems differ. It makes a neat mound of beautiful little silvery rosettes. The leaves are blunt and spoon shaped, edged with lime encrustations. The hairy flowering stems are an inch and a half in height bearing from two to four relatively large white blows. *S. Boryi* is still a comparatively rare plant though its cultivation offers no difficulties. Three to four hours of sun a day seem to be a sufficient amount for it as well as for its brothers. Plenty of lime worked into the soil is desirable.

#### S. BURSERIANA

This is probably one of the greatest favourites of the Kabschia Group. It is a native of the Eastern Alps, found in calcareous and dolomitic deposits up to 7800 feet. Burser's Saxifrage is variable in flowers and form. The earliest to flower, the type plant is characterized by imbricate leaves, grey-green, stiff, glabrous and acuminate. The red stems are about two inches tall, each bearing one large brilliant white flower veined with pink. *Var. major* is taller and comes into bloom somewhat later. *Var. magna* is neat in growth, quite dwarf in stature, and blooms profusely. *Var. Gloria* is a particularly fine form of robust, but more lax growth, with beautiful, large flowers, occasionally two appearing on a stem. The stems are more greenish than the type and rise about 3 inches. *Var. grandiflora* is synonymous with "Gloria." *Var. tridentina* from the Dolomites has larger leaves and flowers than the type with petals reflexed and their margin wavy. This is supposed to be one of the parents of *Var. Gloria*. *Var. crenata* differs from the others in having crenate or scalloped edge on the petals.

## S. CAESIA

This species ranges over the lime-stones of the Alps and Pyrenees. It forms a low crowded cushion of tiny silvery-blue rosettes. The leaves are leathery, recurving and encrusted with lime. The exquisite flowers are borne in loose sprays on threadlike stems three to four inches. June and July.

*S. caesia* has yielded some particularly choice hybrids. Crossing with *S. aizoides* has resulted in *S. patens*, a charming replica of itself, but with yellow flowers; with *S. notata*, the rare *Foresteri*, also with yellow flowers; and with *S. squarrosa* has produced *S. Tyrolensis*, a form combining the characteristics of both parents. Var. *major* is a larger form in flower and leaf than the type.

## S. DESOULAVYI

*S. desoulavyi* was introduced in 1907. Its spiny green cushions resemble *S. sancta* though smaller in form. Its orange coloured flowers appear very early in spring, usually in March, several flowers to the stem.

## S. DIAPENSIODES

Is one of the smallest members of this group and is found on the Southern and Maritime Alps and the South Tyrol. The tufts are silvery grey with imbricate leaves, hairy at the base. From three to five flowers are produced on hairy stems three inches high. April and May. *S. diapsioides* has been in cultivation since 1825.

## S. FERDINANDI-COBURGI

This species was named for King Ferdinand of Bulgaria. It hails from Macedonia, was found on Perim Dag and sent out in 1905. It forms a dense cushion of slightly glaucous leaves. It is one of the easiest in cultivation, increases rapidly, and has charming golden flowers in close

branching heads of four or five. April and May.

## S. JUNIPERIFOLIA

This is often confused with *S. sancta* which it closely resembles, though the leaves are narrower and pointed more sharply. The rather inconspicuous yellow flowers are produced in close heads on inch high stems. It is the shyest flowering species of the group. It enjoys a moist, cool situation.

## S. LILACINA

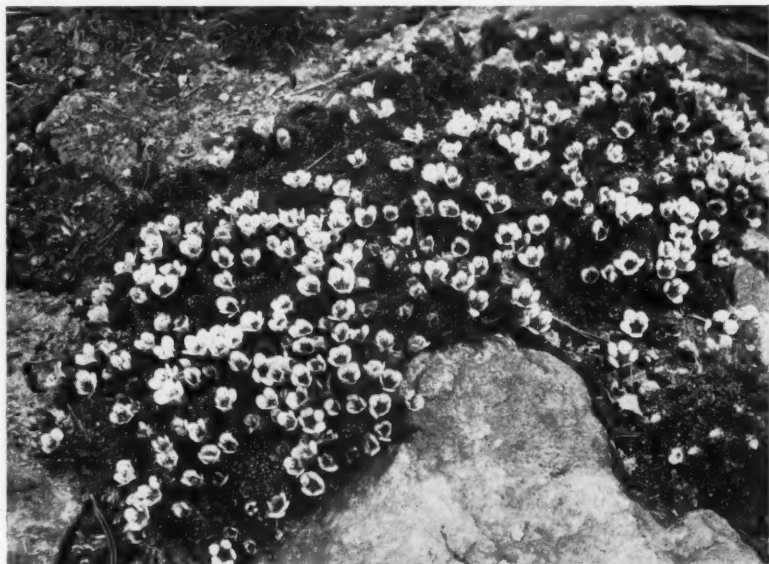
A fascinating pigmy of the genus which was first introduced from the western Himalayas in 1900, flowering for the first time in 1904. Its charming little rosettes of lime encrusted leaves form tight little cushions. It is the only species of the Kabschia Section which produces pink flowers. The rosy lilac blooms on inch high stems, are very large considering the tiny plant they spring from. It prefers a cool, shady, and fairly moist situation, in gritty, leafy soil, and has a hearty dislike for lime.

## S. MARGINATA

If one might apply the term "magnificent" to such a tiny plant, *S. marginata* certainly deserves the appellation. At least it is one of the finest of the Group. A Southern Italian from Abruzzi, forming a dense mat of rosettes; the leaves are small and margined with glistening silver. In fact the leaves are so small and the lime encrustations so pronounced that the whole plant has a grey silvery sheen. In March and April its large white flowers appear 5-7 in a head on three inch leafy stems. It can endure more sun than many of the others and revels in limestone. It was introduced in 1883.

## S. PSEUDO-SANCTA

A form of *sancta* which was raised to the dignity of a species by Janka.



Donald Merrett

*A Typical Kabschia Hybrid*

Except that its flowering period is later, there is little difference botanically or from a gardener's standpoint; it might be described as a later flowering geographical variety.

*S. ROCHELIANA*

This species is a miniature from the Eastern Alps and Balkans. It resembles *S. marginata* as a smaller edition. Its white flowers are produced in heads of two or three in April and May. The stems are pubescent, two inches high, and the lime pits on the foliage strongly defined. Var. *coriophylla* is quite distinct, having broader leaves and heavier encrustations. The ivory white flowers are large and brilliant carried on four inch stems. Var. *lutea* is a form producing yellow flowers.

*S. SANCTA*

This species from Macedonia forms

broad mats of dark green foliage covered in early spring with bright golden blossoms. It flourishes in a partly shaded situation and while not as choice as some of the tribe, is most useful and a very contented little Kabschia, adorning any rocky slope where moisture and drainage is supplied.

*S. SCARDICA*

Is a native of the Balkans. The leaves are oblong and acute with cartilaginous edges pitted with lime. A dense, silvery blue, spiny mound, the glandular hairy flowering stems rise from three to four inches and from four to ten white blossoms are produced in a loose head. The true plant is not often seen in gardens; var. *obtusa* often appearing under the name, *S. scardica*. This differs from the type, coming into bloom earlier,

and having fewer flowers and more obtuse leaves.

#### S. SQUARROSA

Is one of the smallest of the Group. A native of the Calcareous and Dolomitic Alps, it is found on elevations from 4300 to 8800 feet. It is one of the gems of the race having minute lime-encrusted rosettes which form tufted mats. The white flowers which appear in May and June are produced four or five in a head on slender stems three inches high. It should be wedged firmly between stones. A lime-loving plant; shade should be provided during the warmest part of the day.

#### S. TOMBEANENSIS

Is often considered a form of *S. diapiensoides* though its white flowers are larger. It is a rare little plant, grey green in color with spiny leaves. From the Lombard Alps.

#### KABSCHIA HYBRIDS

The hybrids in this Group are numerous; many are of great beauty and value. All are interesting. Natural crosses appear where several species are grown in close proximity, often resulting in a series of intermediate hybrids with marked characteristics of either or both parents. A collection of these plants brings joy to the heart of the Alpine enthusiast. Unfortunately it is impossible to mention more than a few in these brief notes.

#### S. × APICULATA (ROCHELIANA × SANCTA)

The oldest of the hybrids, an easy and obliging plant making mats of emerald spiny tufts from which rise four inch stems crowned with primrose-yellow flowers in early spring.

Var. *alba* is a white sport with the same form as the type.

#### S. × AMBIGUA (MEDIA × ARETIOIDES)

*S. ambigua* resembles *S. media* with reddish sepals and petals of a copper colour.

#### S. × BORISII (MARGINATA × FERDINANDI-COBURGI)

In general appearance resembles *S. Ferdinandi-Coburgi*, but in habit of growth *S. marginata*. The large yellow flowers are borne in cluster heads of four or five on stems three inches high. This cross also produced *S. Kyrillii* sent out in 1909. The two forms were named for the two sons of the Bulgarian King, the Princes Boris and Kyril.

#### S. BOYDII (BURSERIANA × ARETIOIDES)

The large deep yellow flowers of this fine hybrid appear in very early spring.

#### S. BURSICULATA (BURSERIANA × API-CULATA)

This cross has produced a strong growing plant partaking of characteristics of both parents with from two to four large white flowers on stems three inches tall in March.

#### S. CLARKEI (VANDELLI × MEDIA)

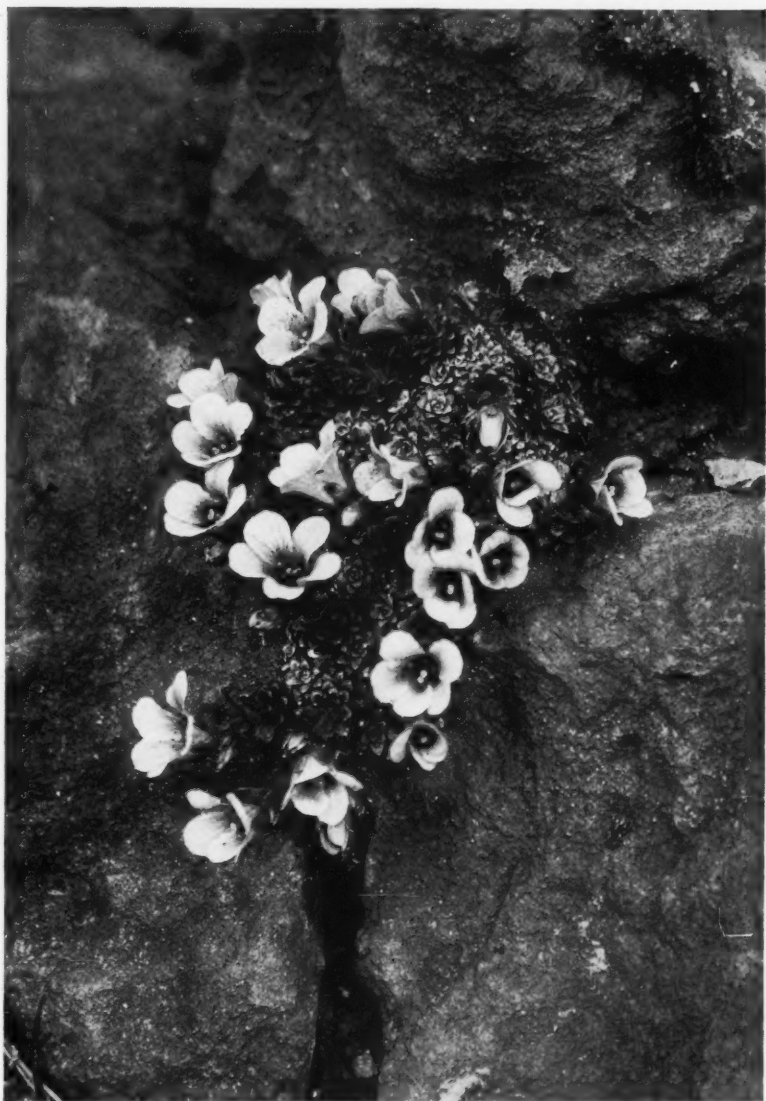
Approximates *S. media* in form, but has quite large rose colored flowers; one of the finest of the group.

#### S. × ELIZABETHAE (BURSERIANA × SANCTA)

A free growing plant of easy culture in any partially shady cool part of the rock garden. The foliage is spiny like that of *Burseriana*; the color is of a deep yellow-green. Soft yellow flowers in loose heads are produced on pinkish glandular stems which rise to about three inches.

*S. × Cherry Trees* is classified by some authorities as being synonymous with *Elizabethae*.





Donald Merrett

*Hybrid Kabschia Saxifrage*

S. × FALDONSIDE (BURSERIANA ×  
ARETIOIDES)

The *Burseriana* hybrids are all charming and interesting, but *Faldonside* is the top of the list. Lovely silvery blue, spiny leaved cushions, from which rise rose colored stems about two inches, crowned with very large flowers of a soft clear yellow and perfect form. *Faldonside* was raised by Mr. Boyd. It was a seedling from *S. × Boydii*. The flower are beautifully crimped as in *Burseriana*.

S. × FORESTERI (CAESIA × MUTATA)

A cross between the *Kabschia* and *Euaizoonia* groups resulting in a yellow flowered form of uncertain temper.

S. × GODSEFFIANA (SANCTA × ELIZABETHAE)

Intermediate in character; spiny grey-green foliage and lemon colored flowers freely produced in loose heads on three inch stems. This plant is also sent out as "L. S. Godseff."

S. × HAAGEI (SANCTA × FERDINANDI-COBURGI)

Similar in habit to the latter parent having slightly glaucous foliage. The orange yellow blooms are produced in cluster heads on three inch stems. It is a good doer in the rock garden. Introduced by Sundermann in 1907.

S. × IRVINGII (BURSERIANA VAR. MAJOR × POROPHYLLA)

A rose tinted hybrid of good form and substance. The rosy lilac flowers are very lovely. A particularly good plant for growing in pans.

S. × JENKINSAE (BURSERIANA VAR. MAJOR × LILACINA)

Similar to the first named parent

in habit and with the pink tinted flowers of *S. lilacina*.

S. × OBRISTII (MARGINATA × BURSERIANA)

A strong growing plant making cushions of foliage resembling *S. burseriana*, but with chalk pits showing on margins; taller growth than either parent and looser in habit. Three or four large white flowers are borne on reddish stems in March. The other form resulting from this cross is *S. × Sundermanni*. *S. × Obristii* and its near relations *S. × Salomonii* and *S. × Kestonensis* all bear a striking likeness to *S. Burseriana*.

S. × PATENS (CAESIA × AIZOIDES)

Pale yellow flowers and a poor constitution. Elliott's Variety is a better and stronger growing plant with soft orange colored flowers.

S. × PAULINAE (FERDINANDI-COBURGI × BURSERIANA)

A free growing plant with dense cushions of glaucous foliage and large pale yellow flowers almost an inch in diameter of good form and substance; stems tinged with red and two inches high. Introduced in 1905 by Sundermann.

S. × PETRASCHII (S. MARGINATA × TOMBEANENSIS)

According to Murray Hornibrook and Farrer, the above mentioned cross is responsible for *S. × Petraschii*. Others credit *Tombeanensis* × *Rocheliana* with being responsible for this superb little hybrid. The dense cushions are formed of narrow slightly glaucous foliage from which three-inch yellowish stems rise, each bearing several large brilliant white flowers.

## Dwarf Iris—1932

By KATHERINE FORDING FELLOWS

The garden holds a great many secrets and each year the student-gardener learns a number of things—sometimes about a plant he thought himself acquainted with,—some mystery is cleared up and several more discovered, all this adding zest to the game.

In this locality, we had little rain in April and scarcely any in May until the last few days of the month. For this reason flower stems were shorter, blossoms smaller and not lasting as well as in more favorable seasons. I wonder if people who do not garden know how to really enjoy a rainfall? To those of us who have dragged the hose and carried around the sprinkling can—finally to sit back and see the whole place impartially watered by a gentle rain—certainly spells satisfaction and is one of the experiences for which we give sincere thanks.

The iris inclined to freckles and blotches, went the limit this year and *Gracilis* was positively shocking and worthy of mention only as a bad example. As I looked at it this year I could see nothing of beauty and take back anything favorable I may ever have said of it. When looking at its muddy face and remembering praising it last year, the thought occurred that I hoped no one had invested in it because of anything that I said. I had planted it along a favorite path next to the Bride, thinking that the Bride's pure white would show up the apricot color in *Gracilis*. As it was it looked like a muddy dress beside a spotless one. I wondered where I could place this disturber to make a happy combination but finally gave it

up and solved the problem by placing it in what I call the hidden garden. As this is somewhat secluded—the years when *Gracilis* is to my liking I can lead my friends that way, but when I do not approve, *Gracilis* can bloom and blush unseen.

*Persica*, as usual, started the season by flowering March 26th and this year the lovely flowers escaped being snowed on. *Reticulata*, which had been dug and reset, because for two years there had been no bloom showed proper appreciation by blooming. *Orchioides* opened its first flower on April 27th, and this year had a second flower stem. I enjoyed it even more than last year, the color is a deep, vivid yellow, the texture waxy. In place of a beard it has a crest which is in appearance like a narrow ruffle of the same color and texture as the falls. On either side of this is a triangular shape of olive brown. The flower stem measured five inches.

*Lacustris*, *cristata*, *gracilipes*, *arenaria* and *minuta* all bloomed and were adorable and I value them in the same degree as last year. John Foster, which I complained of as being slow to increase, grew as though to prove me wrong and bloomed freely making it very desirable. I find the one spoken of as Sea Gull has been renamed Erne. *Graminea* (D.B.) in rich red-purple with a heavy white beard, was remarkably beautiful and has been put on my honor roll.

I believe we are right in counting as *pumilas*, *Azurea*, *coerulea* and *atroviolacea*; however, when I read Mr. Farrer's statement that "a true *pumila* is as rare as a Dodo" I began to want to know more about them.

Last fall I planted two—a purple and a yellow—plants which Mr. Bates had grown from imported seed. The foliage was more dwarf than anything that I had and on May 1st one bloomed—a wee, pale yellow flower. In early morning when I discovered it the falls were held in a horizontal position which gave it a spritely appearance, but a little later I found it had changed its mood and tucked its falls under in a smug fashion, but it was delightful just the same. The flower stalk measured three inches. I now have several plants which I have grown from seed and am hoping that they will bloom next season.

Last winter in studying foreign seed lists, I discovered quite a number of dwarf iris species offered. Mr. Correvon of Switzerland and Rev. Anderson of England having especially attractive lists. As a guide in making selections, I used Dykes "Handbook of Garden Irises" and "Dykes on Irises." In this way I was able to get some light on the various ones offered. Seed of the dwarfs found in our western states was secured and these with the others should provide considerable interest. While I do not count on success in every case, already I have enough small plants to make hope run high and to keep the interest stimulated.

In the spring of 1931 I ordered some dwarfs of Mr. J. Sass leaving the selection to him with the suggestion that I preferred them small as to height and size of bloom. When they bloomed this spring I was truly delighted. They varied as to size, color and form but not one but what had unusual charm, insomuch that in trying to decide which were most worthy, I had a feeling of confusion. However, as time passes, I find that a certain three seem to have left a special impression. Perhaps

the most outstanding was a soft, deep yellow self, of a tone new to me. It occurs to me that the color, as I remember it, is like a yellow peach that has been pared. The standards and falls seemed much the same color and the beard was a yellow that blended with the flower. It had several bloom stalks about six inches tall. As it came marked "deep yellow" I judge it has not been named and while I am waiting for Mr. Sass to name it I shall think of it as "Peaches." The other two in mind were a pale, greenish yellow and a pure white. They opened the same morning and seemed related as they were of the same glistening, delicate texture and both were round or globe like as to form. The white one had a white beard and the yellow one a beard that matched its coloring. Each had but one bloom stalk and I tried to imagine how exquisite a mass of their dainty globe-like flowers would be. Of course I have had the fun of naming them temporarily and am looking forward to seeing them again to make sure that they are as lovely as I remember them.

Among the new plants to bloom this season were some of the named Sass dwarfs and intermediates. With the blooming of these I was able to identify two that had come to me earlier unnamed. One marked "black-purple intermediate" and which I enjoyed calling "the Moor" proved to be Nyx. I wish I could describe Nyx as it appeared to me. It has an Oriental effect—somber and dignified—a rather large flower of a satin texture. The standards are black-purple and the falls are even darker, the lower part, below the beard seeming quite black. This dark effect is emphasized by a white beard—changing to yellow in the throat. On either side of the beard is a white space

veined with black. Altogether excellent and keeping in bloom for some time. When Puck bloomed I could find no difference between it and the one I have spoken of as Spaniard. I will compare them again next year but I believe they are the same.

It was my first season with Nymph and it is surely rightly named—a deep yellow self of fine form, impressing me as though poised for movement. The distinctive feature seemed to be the way the falls curved—they hang fairly straight with a shoulder-like curve—in and out again. The standards are ruffled and there are brown markings in the throat.

Doxa—at first named Olive Giant—is very lovely as to coloring, a creamy, olive tinted blossom, rather large for its height. It is of good form and texture and very free blooming. Its remarkable coloring attracts much attention.

It chanced that the intermediate Otoe was placed in front of the tall bearded George J. Tribolet. To my surprise they bloomed at the same time and were so similar as to color and form that at first glance it seemed to be one plant with a low branching habit. Otoe is a little lighter in coloring.

Of the new dwarfs planted last fall, I was particularly interested in Ladies of Peeling and Princess Louise, and gave them prominent places. I dreamed of the former as a low growing plant covered with small lavender blossoms—sort of a garden party effect. What really happened was one flower, too large for a dwarf—(the flower measured five inches). The color was a pale, silvery self with a pale yellow beard—until at the end it bunched up into a blue goatee. I was truly disappointed and moralized “See the Ladies’ first.”

After being disillusioned in this I

still hoped for consolation in Princess Louise. It was observed to be growing overmuch for a dwarf and near the end of May on a 24-inch stem a flower opened which I recognized as an old-time acquaintance — Princess Victoria Louise. It was a joke on me but P. V. L. moved out. About this time I read the statement that Princess Louise and Burchfield’s Cyanea are the same—a light blue. This was of interest as with the blooming of the blue Cyanea I found it the same as one which until recently I had supposed was Azurea. It also seemed very like Blue Waif. Speaking of Azurea, through the kindness of a friend I now possess what I trust is the true plant. The Azurea which I now pin my faith to began blooming May 1st. It was three inches tall, the standards pale grey-blue and the falls the same with darker veinings. Mother Nature wishing to keep it modest in appearance, gave it a white beard—the effect being subdued and delicate. I was much disappointed that my plants of Coerulea did not bloom this year and had to content myself with being able to identify them by the manner of dying down completely in the fall and thus differing from the plants of Azurea.

Jean Siret and S. D. L. Chavanac which have the reputation of blooming throughout the summer, each gave one bloom stalk and up to this time, the latter part of August, have considered their duty done and show no signs of blooming. Both were nine inches tall. The standards of Jean Siret were lemon yellow and the falls a deeper yellow flecked with a dull color, but turned under in a way to show only the upper half. S. D. L. Chavanac bloomed at the same time—same height and form—but the color was red-purple. If they bloom as we are led to expect they will be valu-

able, otherwise I would not consider them especially attractive.

A beardless iris greatly enjoyed, is *hyacinthiana*—an iris of the *ensata* group which was bought of Mr. Burchfield several years ago. It is in bloom here on Decoration Day, the narrow foliage being taller than the flowers which are blue and white, two on a stem. The foliage grows fountain-like, similar to ornamental grass and is good throughout the season. The flowers have a graceful, butterfly effect. Mr. Farrer found it growing in China and sent it home as "Ensata 496." In "On the Eaves of the World" he tells of seeing it growing in quantity and how it appeared to him like sapphire daffodils in an orchard. This iris will endure dry soil.

Another beardless iris came to me several years ago under the name of *fulva*. I treasured it as that iris until last fall when I discovered the mistake on seeing an illustration of *fulva* in color. *Fulva* was then ordered and bloomed this season, proving to be very different. Since making the acquaintance of *fulva* proper I am anxious to know the identity of the other plant. It has been suggested that it may be *I. versicolor kermesina*. I will describe it and if any one recognizes it I will be interested. The falls are red velvet—the color of the falls of Seminole. (They bloomed at the same time and I compared them.) The throat is a strong yellow, this color extending fan shape half way down the falls, gradually fading into white and the whole overlaid with a network of dark red veining. The small standards open up and are a lighter red veined with dark red. The stem is hollow.

One who appreciates the magical blending of colors, delicate venation as well as dark, rich colorings, will find

especial pleasure in what are easily spoken of as bulbous irises but to be more exact—I refer to the Pogo-Cyclus, Regelias, and Regelio-Cyclus hybrids. As to acquaintance with them, I am but a beginner. For a number of years I have grown Parvar, Paracina, Zwanenburg and Carmelo, giving them no special treatment. Zwanenburg was described last year and we will pass on to Parvar, a dark black-violet iris with a reddish undertone. It is about 20 inches tall. The falls seem darker than the standards and the beard is brown.

Paracina is much the same as to height, form and general effect but has some white in the ground and though veined with black it lightens the color effect. It also has a dark beard.

Carmelo is taller, about thirty inches in height. It began blooming May 20th. The color is grey-blue and it is fine as to form, holding itself proudly and reminding one of Korolkowii, one of its parents. The dome-like standards appear a little darker than the falls, having a light ground closely covered with bluish veins. The coloring of the falls is much the same except for being a little lighter. There is a yellowish beard which is not noticeable being covered by the stylearms. At the point where the beard ends the falls bend down crisply, hanging almost straight. It is beautiful and refined, and especially to be enjoyed as a cut flower where one can study it close at hand.

Lady Lilford is a decided brunette of a dark blue-violet, the depth of color being emphasized by black veining and also a black beard. It is a large, well formed flower and has bloomed well. Another dark one not as tall as the former, is Hamadan. A dark violet having a white throat veined purple. The beard is black



and the falls seem narrow compared with the standards. It is about 18 inches tall.

Last fall, having become more interested in these iris, I planted the following varieties: *Andromache*, *Clotho*, *Hebe*, *Hera*, *Isolda*, *Mars*, *Nazarin*, *Susiana* and *Sir Trevor Lawrence*. These were planted on a terrace against a garage and having a southern exposure. There is considerable sand and gravel mixed with the soil. All grew well and four bloomed. When I discovered the buds I was jubilant, and as to their beauty, it was not disappointing.

*Hera* was the first to bloom (May 10th). It was 18 inches tall and at a distance had a delicate raspberry color effect. Close at hand it was exquisite for veining and blended coloring.

A day later *Clotho* bloomed. It was but eight inches tall and the darkest iris that bloomed for me. The standards were black-blue and the falls maroon-black. There was no veining or beard and the texture was like heavy velvet. Anxious to share its beauty with some one, I spoke to a man in the garden and asked him to come and see it. After giving it close attention he said, "It beats all what Nature can produce!"

May 14th *Hebe* opened. It was 18 inches tall. The standards had a grey ground and were veined violet-blue. The grey falls were heavily veined

violet, but the distinguishing feature was that in place of a beard was a wide black velvet band.

The last of the four was *Nazarin* (May 21st). It measured 26 inches, a good sized flower. The falls and standards were two and a half inches across. It was of a heavy texture and had the appearance of changeable taffeta silk. At a distance it appeared violet-purple. The throat was light colored, heavily veined and giving a peppered effect. There was a yellow beard at the end of which was a black blotch. It stood up well under rain and hot sun.

*Susiana* grew well and showed signs of a bud but the dry weather may have discouraged it as there was no bloom.

Each year in the fall I have a happy, glowing feeling that the iris plantings are arranged the best ever (and perhaps they are) but when the blooming season comes on again I am soon aware that it is moving time again. A few—a very few—seem to be settled but there are a lot of transients and I have to content myself with the thought of having made some progress but not having arrived. Sometimes I am tempted to let the color schemes go and put the thought on making each one comfortable as to soil, sun, moisture, drainage, etc. However I know I shall always be hoping to please the eye as to color harmony.

## Foreign Seeds

BY HOMER C. SKEELS

To most gardeners, seeds are seeds and of little interest except that they shall live and grow quickly into the desired plants. Perhaps if there were an opportunity to study such an array of seeds as is in the permanent collection of the Division of Foreign Plant Introduction of the United States Department of Agriculture, one would find as much interest in the seeds themselves as in the plants that grow from them. Of the 289 families of seed-bearing plants listed by Dalla Torre and Harms, 219 families are represented there.

The samples vary in size from the almost impalpable dust of the orchid seeds to the double coconut of the Seychelle Islands, more than a foot in diameter and weighing up to 50 pounds. This variation in size has necessitated the working out of a series of vials of different diameters and adapting each size to a box that can be filed in the pigeonholes of a regulation herbarium case. These vials are of six sizes, being  $\frac{5}{8}$ ,  $\frac{7}{8}$ ,  $1\frac{1}{4}$ ,  $1\frac{3}{4}$ ,  $2\frac{1}{4}$ , and  $3\frac{1}{4}$  inches in diameter respectively. Besides these vials there are a series of covered boxes for dried fruits and a series of fleshy-fruit samples preserved in formalin in the  $2\frac{1}{4}$  and  $3\frac{1}{4}$  vials.

Naturally, the great majority of the samples are in the  $\frac{5}{8}$  size vials. Of the six herbarium cases used for this size, one case is needed for the grasses alone, including wheat, rye, barley, oats, corn, sorghum, etc.; another whole case is taken up with the legumes,—beans, peas, clovers, soybeans, vetches, lupines, etc. One of the well-known seeds is Job's tears (1) with its smooth, hard, shining

pearl-gray coat. From India comes a soft-shelled form—that is edible (2), and also a long slender form (3) that does not look like Job's tears except for the outside coat.

Two interesting samples of the banana family are the traveler's tree of Madagascar (4), with seeds the size of a kernel of coffee but covered with a silky fringed coat as bright green as the brightest parrot you ever saw; and the bird-of-paradise flower (5) with a black seed about the same size, more than half of which is covered with a brilliant scarlet plume.

Everyone knows the buckwheat (6) with its three-cornered, cone-shaped seed; but there is a Tatarian buckwheat (7) which has a longitudinal groove on each of its three faces.

An interesting group of ornamental shrubs introduced from China is the cotoneasters; and the fruits (8), like little thornapples or red-haws, are peculiar in having from one-quarter to one-third of each pyrene sticking out of the top of the fruit.

Every seed is joined to the inside of the fruit in which it grows by a little string called the funiculus, usually left inside the pod when the seed is discharged. *Acacia cyclops* (9), from Australia, has a bright pink funiculus which is wrapped and rewrapped around the seed and is discharged from the pod with it.

In India and other oriental countries there is a bright red, lens-shaped seed (10), a little more than a quarter of an inch in diameter, that is used by jewelers as weights, each seed being said to weigh exactly 4 grains. In Ceylon there is another species

(11) which has the seeds half red and half black. This is not the crab's eye bean of the West Indies (12) which is used so much for beads and which has a red seed with a black spot covering about one-fourth of the hilum end of the seed. Nor is it the entirely different vine, *Dolicholus precatorius* (13) which has a very similar seed in size and coloring, except that the black spot is on the opposite end of the seed, the hilum being on the red instead of the black.

Most of the 125 kinds of Australian eucalypts so far introduced have small brown seeds shaped like tiny boomerangs. One kind, however, *E. calophylla* (14), has black seeds half an inch long which would do nicely for models of an Eskimo kayak, even to having a round light-colored spot on the top to mark the opening where the paddler sits.

The rose of sharon (15) is a well known and commonly cultivated ornamental shrub, sometimes called althea. Do you know that the dark-brown, kidney-shaped seeds have a fringe of light-brown whiskers? And there is a morning-glory (16) down in Argentina with seeds about the same size and color which have most of the back of the seed covered with a lighter-yellow bunch of whiskers that are twice as long as the seed.

Watermelons are well known and liked by most Americans and everyone has seen the flat, black or brownish seeds. From the country that used to be called Russia, comes a variety (17) that has the outer coat of the seed broken into pieces so that the pattern often resembles the face of a monkey. Not to be outdone, there is a Japanese variety of the now well-known soybean (18) which has black seeds with similar white streaks and patches. And from the Himalayas comes a small gourd (19)

with the most remarkable seeds in the whole collection,—each one tied up with a "belly band"!

America is the original home of the corn plant and we are familiar with pop corn, sweet corn, and field corn. But Cuzco corn (20), from Peru, with kernels that have to be turned sideways to get them into a  $\frac{7}{8}$  vial, is not so well known.

The bananas found in our markets are seedless; however, the Abyssinian banana and the Transvaal banana (21) have dark-brown or nearly black seeds the size and shape of a wisdom tooth without the roots. We all know and love peanuts (22), which are not nuts and are not peas, although they belong to the bean family. These are supposedly native to Africa. Down in Brazil there is another kind (23) with the seeds 3 times as large and mottled brown and white. In this same bean family is found the fruit which looks like a rooster's comb (24) and this pod (25) which is just a string of tiny horseshoes. And in this same size vial is the seed of the necklace bean tree (26) of the West Indies; it is like the crabs-eye bean in coloring, being red and black, but the black spot runs lengthwise of the seed instead of covering the end.

The cherries, plums, peaches and almonds run through many sizes of vials and have various shapes. Possibly the greatest variation is in this size and is illustrated by the pits of the various kinds of peaches from China. Beginning with the common peach (27) that everybody knows, we pass to the nearly globular pits of David peach (28), the thickly ridged and queerly marked pits of the Kansu peach (29), the nearly smooth apricot-like pits of the Tangut peach (30), the long, plum-like pits of the Mira peach (31) and arrive lastly at the

flat peach (32) which is twice as broad as it is long.

The larger sizes of vials are used for samples of pods as well as seeds, there often being a seed sample in the  $\frac{5}{8}$  vial and a fruit sample in one of the larger sizes. With the destruction, in the path of progress, of the famous ginkgo trees along 13th Street in Washington, interest turns to the seed (33) of this tree from China which is considered to be the last living relic of a past geologic age. It is closely related to the pine family but the fruit looks like a plum and the seed looks like a plum pit. The monkey puzzle tree of Brazil (34), well known as a greenhouse plant, has a reddish brown seed nearly 3 inches long and more than an inch in diameter, one of the largest of the pine family. In Uganda, Africa, there is a tree bearing large pods enclosing large black seeds (35) with a creamy aril which spreads out over the hilum end like an umbrella. And in Luzon, one of the Philippine Islands, is a related tree with a larger seed (36) having the orange-yellow aril divided into 2 parts, each half an inch broad and extending nearly to the tip of the seed on opposite sides.

These are members of the bean family and the pod of the Brazilian peanut (23), 3 inches long and an inch in diameter, is in the same size vial. Here also is the Jack bean (37) which is supposed to be the bean for which Jack of the beanstalk traded his mother's cow. It is bright brick-red with a light-gray, linear hilum and might well tempt any boy as being more valuable than a mere cow.

In this size also are the seeds of the Para rubber tree (38) which look like big, overgrown castor beans. This is the plant that produces 95 per cent of the real rubber. It is native to Brazil but the rubber is produced on

commercial plantations in the East Indies.

Looking like pieces of chicken liver are the cotyledons of the kola nut (39) which is used to flavor some of our summer drinks. It is interesting to see beside these, the seeds of tea (40) and cacao (41); it hardly seems necessary to picture coffee, it is so well known.

The baby coconut (42) from Chile has the characteristic 3 eyes found on the regular coconut. This edible Chinese acorn (43) is peculiar in having a flat top and in having all the rest of the acorn covered by the cup. And the Australian sour plum (44) is the seed of a plum-like fruit the size of a goose egg which is borne in clusters on the trunk, or even on exposed roots, of a tree which looks much like a palm.

The balsam-of-Peru has a fruit (45) like one key of a maple in shape, but it is attached at the end of the wing. Much like this in shape and general appearance is the seed of the mahogany tree (46) although this grows in a thick woody pod 6 to 8 inches long. And from Saigon, China, comes a queer fruit (47) which has 5 wings on the body, and 3 small wings and 2 large ones growing from the top. The dipterocarps are large forest trees in India and the Philippines.

Grass seeds are usually fairly small, even the large Cuzco corn finding a resting place in the  $\frac{7}{8}$  vial. This bamboo seed (48) from India is about 4 inches long, nearly 2 inches in diameter, and is hard and woody.

About the same size and probably harder is the seed of the ivory nut palm (49) which is used to make our "pearl" buttons. Many people will remember the time when making things out of raphia was all the rage. From British East Africa comes this

fruit (50) of one of the species of the palm genus *Raphia*.

Catalpa seeds are familiar as they sift out of the pods during the late fall and early winter. In India there is a related tree with racemes of similar flowers 3 inches across which are followed by flat pods 3 feet long enclosing these lovely, silky-papery winged seeds (51). And in Java a member of the squash family climbs to the tops of the tallest trees, blossoms and bears pumpkin-like fruits which open at the base and scatter flat seeds an inch in diameter with a crescent-shaped wing 6 inches long and 2 inches broad. The seeds are so shaped that when released they sail down to the ground in a spiral about 20 feet in diameter, looking like tiny aeroplanes.

In the boxes where are kept the dried fruits too large for the vials are many queer objects. The doum palm from tropical Africa is peculiar not only as being one of the very few palms with a branching stem, but the

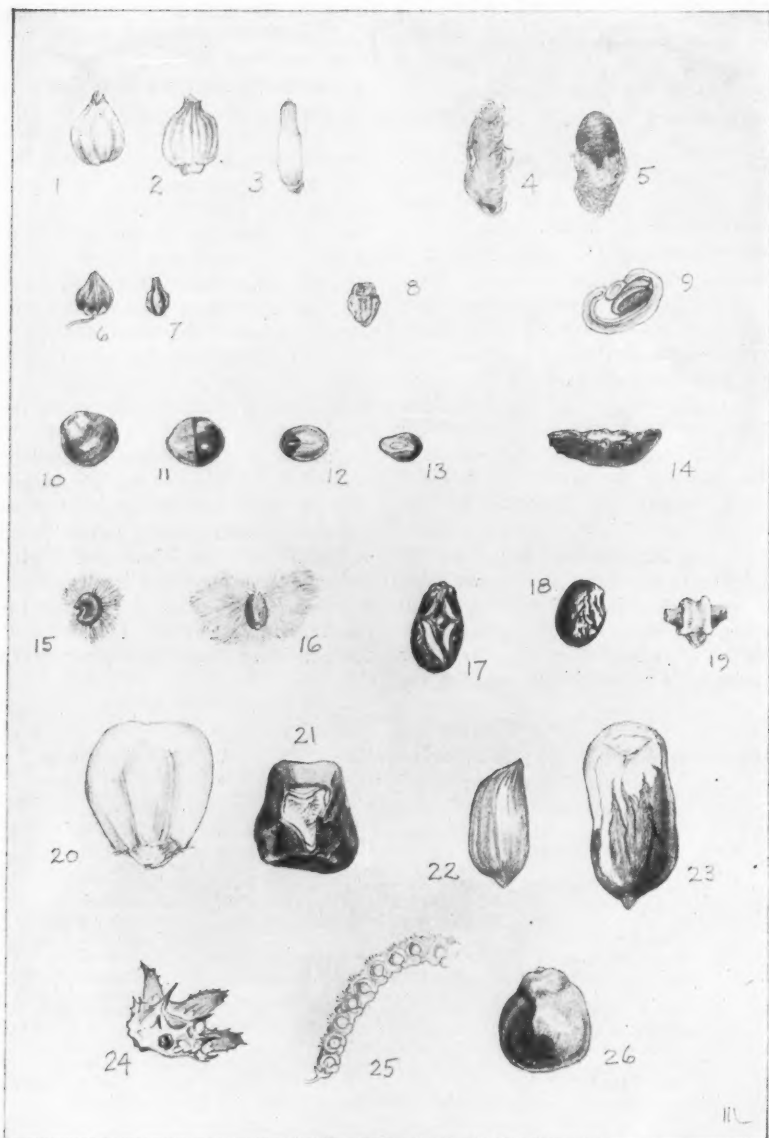
orange-yellow fruits, 4 inches long, have a thick layer just under the outer coat that looks and tastes like gingerbread. And the Caroline Island ivory nut palm has a fruit 4 inches in diameter covered with shining brown scales like an armadillo. This fruit is also used for the manufacture of "pearl" buttons.

From Mexico comes this enormous acorn (52) whose cup has the scales modified into concentric rings covered with a fine brown wool, in marked contrast to this one (53) from Java that grows its fruits packed closely together in a long spike, but looks otherwise like some more familiar species.

One might think that the handling of such a seed collection would become tiresome and monotonous since there is so much labeling and bottling; so much corn and wheat and alfalfa and soybeans, but there is always the possibility that one of these many interesting things will turn up; always the possibility of something new every day.

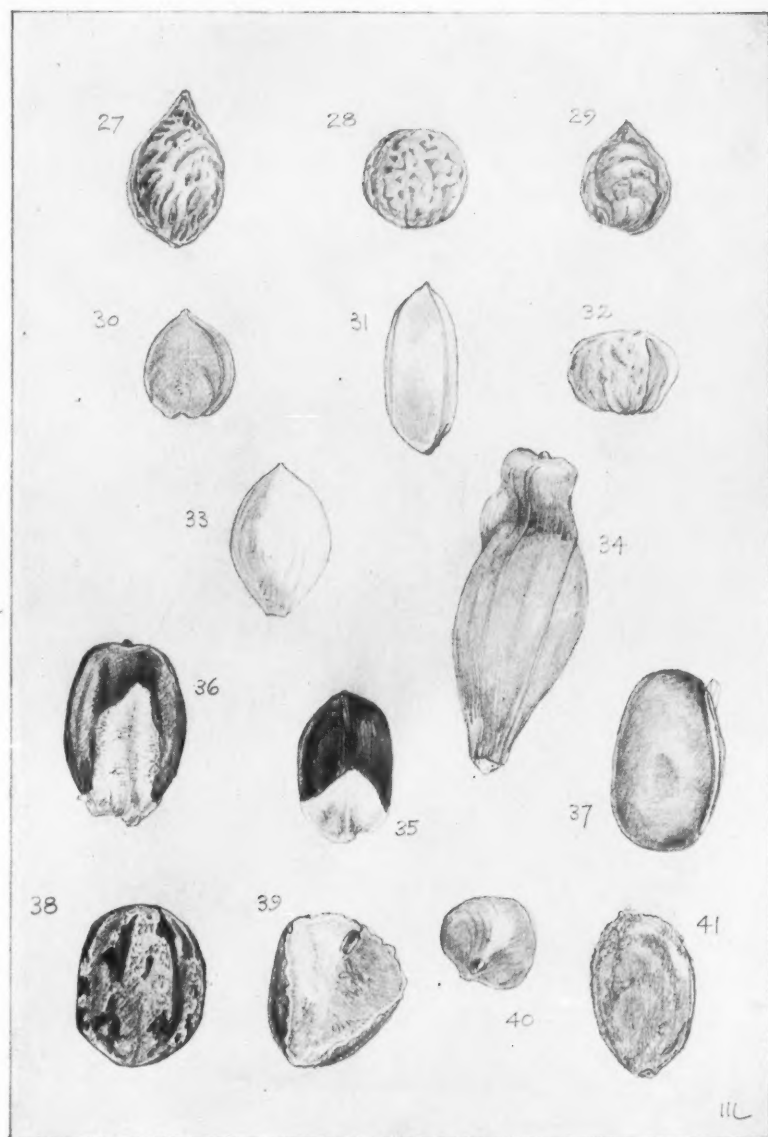
#### LIST OF NAMES OF SEEDS

- |  |   |                                      |
|--|---|--------------------------------------|
| 1. <i>Coix lacryma-jobi</i> .            | 16. <i>Ipomoea ficifolia</i> .            | 34. <i>Araucaria araucana</i> .      |
| 2. <i>Coix lacryma-jobi mayuen</i> .     | 17. <i>Citrullus vulgaris</i> .           | 35. <i>Pahudia africana</i> .        |
| 3. <i>Coix lacryma-jobi stenocarpa</i> . | 18. <i>Soja max</i> .                     | 36. <i>Pahudia rhomboidea</i> .      |
| 4. <i>Ravenala madagascariensis</i> .    | 19. <i>Trichosanthes himalensis</i> .     | 37. <i>Canavalia gladiatum</i> .     |
| 5. <i>Strelitzia alba</i> .              | 20. <i>Zea mays</i> .                     | 38. <i>Hevea brasiliensis</i> .      |
| 6. <i>Fagopyrum vulgare</i> .            | 21. <i>Musa davyae</i> .                  | 39. <i>Cola acuminata</i> .          |
| 7. <i>Fagopyrum tataricum</i> .          | 22. <i>Arachis hypogaea</i> .             | 40. <i>Thea sinensis</i> .           |
| 8. <i>Cotoneaster racemiflora</i> .      | 23. <i>Arachis nambyquarae</i> .          | 41. <i>Theobroma cacao</i> .         |
| 9. <i>Acacia cyclops</i> .               | 24. <i>Onobrychis crista-galli</i> .      | 42. <i>Jubaea chilensis</i> .        |
| 10. <i>Adenanthera pavonina</i> .        | 25. <i>Hippocrepis multisiliquosa</i> .   | 43. <i>Lithocarpus cornea</i> .      |
| 11. <i>Adenanthera bicolor</i> .         | 26. <i>Ormosia monosperma</i> .           | 44. <i>Davidsonia pruriens</i> .     |
| 12. <i>Abrus precatorius</i> .           | 27. <i>Amygdalus persica</i> .            | 45. <i>Toluifera pereirae</i> .      |
| 13. <i>Dolicholus precatorius</i> .      | 28. <i>Amygdalus davidiana</i> .          | 46. <i>Suaeda macrophylla</i> .      |
| 14. <i>Eucalyptus calophylla</i> .       | 29. <i>Amygdalus kansuensis</i> .         | 47. <i>Dipterocarpus alatus</i> .    |
| 15. <i>Hibiscus syriacus</i> .           | 30. <i>Amygdalus tangutica</i> .          | 48. <i>Melocanna baccifera</i> .     |
|  | 31. <i>Amygdalus mira</i> .               | 49. <i>Phytelephas macrocarpa</i> .  |
|  | 32. <i>Amygdalus persica platycarpa</i> . | 50. <i>Raphia longiflora</i> .       |
|  | 33. <i>Ginkgo biloba</i> .                | 51. <i>Oroxylon indicum</i> .        |
|  |   | 52. <i>Quercus cyclobalanoides</i> . |
|  |   | 53. <i>Quercus spicata</i> .         |



[See Pages 308-309]

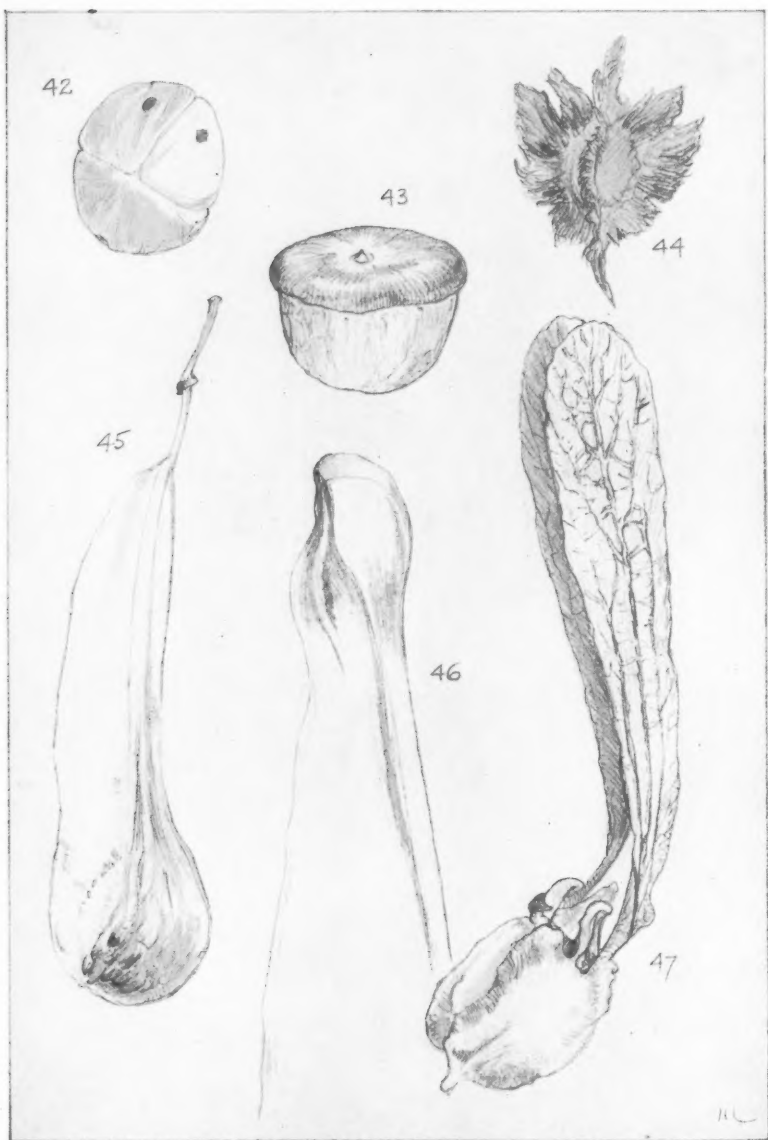
*Foreign Seeds**Job's Tears to Necklace Bean*



[See Pages 309-310]

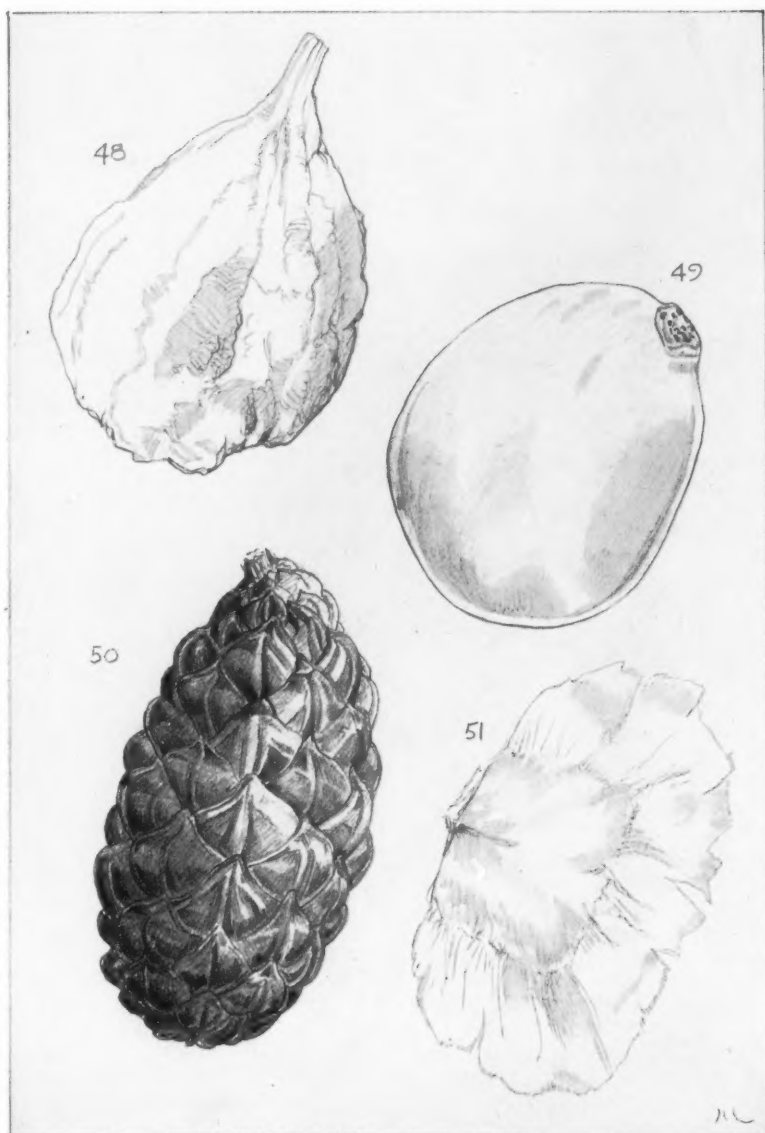
*Foreign Seeds*  
*Common Peach to Cacao*





[See Page 310]

*Foreign Seeds*  
*From Baby Coconut to Dipterocarpus*



[See Pages 310-311]

*Foreign Seeds*

*From Bamboo to East Indian Trumpet Flower*



[See Page 311]

*Foreign Seeds*  
*Acorns*

## The Idealist in the Garden

Many a sermon has been preached upon the "busy little ant" and many a moral drawn from their industry and diligence but a good thing may be carried too far, both the sermons and the ants. Old Solomon may have been a wise man in sending the slug-gard to the ant but he certainly was no gardener. Had he been, he might have viewed the creature from an altogether different angle. Since I first wrote about the damage they did in the rock garden I have almost come to the conclusion that when they have once become thoroughly settled and established in the rock work there is no way to get rid of them except by pulling the whole thing apart and rebuilding it. So obsessed am I by my hatred of them that I find myself prancing about on city pavements to kill the beastly creatures.

Until this spring it was only the fibrous-rooted plants which had been killed by their tunnelling but now the bulbs are suffering too. Of a clump of ten or a dozen *Tulipa persica* which had been thriving for years only two came up this spring; and other little bulbs failed to put in an appearance. Investigation showed that ants had been tunnelling under them and so left the bulb roots exposed to a labyrinth of tiny air pockets.

Many suggestions came in to me after I had made lamentation over a year ago and I tried them all but have found that the use of carbon di-sulphide is the most effective. But one must keep after them and never pass by the smallest colony without squirting some of the poison into the hole. In the Royal Horticultural So-

ciety's "Gardeners' Diary" this year the following method of operation is advised. "Drive a metal rod obliquely into the ground so as to get under any plant which the ants infest. Then push an iron tube of the same diameter as the rod down the hole from which the rod has been withdrawn, pour the carbon bi-sulphide (one teaspoonful) down the tube, withdraw the tube and fill up the hole with soil." This would eliminate any danger of getting the liquid on the plant. My method has been to pour the liquid into an oil can with a long snout, but be sure to have a washer of rubber or leather fitted into the neck of the can where the snout screws in or the liquid will drip out when the can is used. With this contraption the long tube of the snout may be held at the mouth of the ants' tunnel and the carbon bi-sulphide will run out and flow directly into the hole. When enough has been injected into nest I press the soil about the hole into it so as to plug the opening up. But when the ants have made use of a plant to mask their entrance this method fails if one wants to save the plant. The oil-can method may also be used to exterminate borers in trees and shrubs by squirting the liquid into the holes which the borers have made. As carbon bi-sulphide is very inflammable, pipes or cigarettes can not be smoked while using it.

Several gardeners wrote that they had been using Antrol and had found it thoroughly satisfactory; one advised sinking the bottles up to the neck instead of only half way as the directions state. I had used Antrol twice before I started with the carbon di-

sulphide, without much effect. I can not condemn it for both times when I used it in the late summer, the pear trees which are in the garden were dropping their fruit and furnishing the ants so plentiful a supply of easily obtained food that one could not blame the little pests for not going near the bottles. I am trying Antrol again this year in the hope that those ants which escape the carbon may fall foul of the syrup. But how are all those millions of miles of tiny tunnels going to be filled up with earth again?

That is going to be a nice problem. The only easy solution which I can guess at is to sprinkle the rock garden heavily and often in the hope that the surplus water may in time settle enough earth into the cavities to eventually fill them.

We Americans whose rock garden education has been chiefly through English text books have all been following their idea of a perfect rock garden being one which does not have to be watered or at least very often. Again we have forgotten to bear in mind the climatic differences. Here where we have hot dry summers we will have to water our rock work diligently and carefully not only for the well-being of the plants but for the ill-being of the ants, for it is in the snug dry elevations that these pests find happy homes. This was forcibly brought to my notice this year in the garden of a friend where I had helped to build a rock garden two years ago. This had been made against a bank and on the level ground at its base. There was no evidence of ants at the time; but now every promontory which we had built out from the natural bank is filled with ants. I have come to the conclusion that if one wants to grow rock plants the only way will be to build the garden with as perfect drainage as possible

and then water it as frequently as one would water the rest of the garden.

But a garden has its compensating joys and surprises for its troubles and disappointments. In the first week of July, 1930, I was given two leaves of *Helleborus niger* with the information that they would eventually root, but it would take a long time before they would be large enough to bloom. There was not the slightest shred of a root on either leaf. Recalling my childhood days when my mother planted rose "slips" under Mason jars, I decided to try them with the Christmas rose. There is a narrow border on the north side of the house where azaleas, ferns and heucheras grow. Several years before this border had been thoroughly spaded and several hundreds pounds of humus mixed into the soil which is now a deep spongy mass of richness. Here I planted the leaves of the hellebore, first stirring in more humus, and carefully covered them with glass jars. Then I read up on the propagation of hellebores and found, to my great dismay, that August was the right time for it and not July. The leaves remained green and stiff throughout the summer, that terrible summer of 1930 when the rain forgot to fall; but the soil about the jars was kept constantly moist. The leaves both looked so flourishing that late in the autumn I decided to experiment and removed the jar from one of them. By Christmas that leaf had become brown and sere but the one still covered was as green as ever.

Early in May of 1931 when all danger of frost was passed the glass jar was removed from the other leaf; investigation showed that the old leaf was partly withered but there was a fully grown new one to take its place; and where the other leaf had been was

a tiny new leaf about two inches high. No more care or attention was given the plants save that once in a while in especially dry weather I watered them and as they were still alive I began to wonder if I could count upon the larger one giving me blossoms at Christmas of 1933.

The week before last Thanksgiving when I returned to the garden after an absence I, very naturally therefore, did not believe the shout of joy which greeted me: "Come, see the Christmas rose in bloom." But it was, one large glorious white flower and six more stems of various heights to follow on; for from then on until late January there was never a day when the garden did not boast of at least one flower. Two of the stems bravely carried a second flower each. Now seventeen months between the planting of a leaf under a glass jar and a little blooming plant of *Helleborous niger* is nothing short of miraculous. I am certain that it was all due to the fact that there was so great an amount of humus in the soil. Any one desiring more hellebores may follow this example and point the finger of scorn at me if they fail. I might say in passing that I have found that in this same soil, dwarf evergreens and mahonia cuttings have rooted very readily and in this bed I have succeeded in rooting the only cutting of *Juniperus squamata* var. *Meyeri* which had ever grown for me. This juniper is supposed to be hard to propagate and is usually grafted but this last season an old nursery man told me that it would root easily in an acid soil and that he always placed his cuttings in a compost of one-third sand and two-thirds peat moss.

Christmas roses lead on to other white flowers. I wonder why it is that so few gardeners seem to care for this color. White lilies, white

lilacs, Shasta daisies; that is about as far as the average gardener will tolerate the color. Yet there is a crisp clearness, a chaste loveliness about most white flowers which is not surpassed by the brilliancy and gorgeousness of other blossoms. I have learned to value the white flowers by visiting the garden after night-fall. Mooning about the garden as a little boy I discovered their value by finding one night in June that the only flowers which I could see on that dark night were the white Japanese iris which until then I had always regretted having so many of. Visiting one's garden after dark, whether on moonlit nights or not, is always a keen joy. Then one can enjoy the beauty without the disturbing element of toil brought in upon one; the place which needs to be weeded is not noticed, nor the plants which need to be staked, nor the inroads of the ants, nor the hard baked soil which should have been loosened that day.

On moonlit evenings even the pale blues and soft yellows stand out in gleaming softness and then the whites fairly shine and sparkle. The trusses of the lilac seem to be pale flambeaux of ethereal light, white tulips change into crystal globules of incandescent purity, white irises shine like clear white torches under the glamour of the night. The pinks make soft cloud masses about one's feet, the white peach-bells float about like fairy butterflies of gleaming softness, even the fat-stodgy crocuses which by day look like daubs of belated snow are now transformed into a clearness and purity which in the sunlight they never showed. Even the snowdrops gleam and glisten with an added and unearthly beauty, an unearthly whiteness which fairly pulsates with calm pure light. But then I am a slave to the snowdrop and would fall down and

worship it were it blooming amid the lush magnificence of June.

In my hot dry sandy garden the galanthus tribe are slow and hard to establish and even in the humus filled north bed it has taken years to persuade *G. nivalis* to settle down and raise families. *G. Elwesii* will make quite a show of itself the first year and bravely greet the Christmas season but the next year less than half the bulbs come up so that every few years a fresh supply has to be gotten. But in one or two places a bulb or two of this species has managed to live on and I am beginning to hope that they have become accustomed to their new home and will now begin to multiply. Of all the other species which English catalogs list so brazenly I have so far only been able to obtain *byzantinus* from American dealers. After preparing its home by stirring into the soil large quantities of leaf-mold and humus half of the dozen bulbs honored me by living for three years now and perhaps will carry on until established. When one reads Mr. Bowles chapter on Snowdrops in that peer among garden books, *My Garden in Spring*, one's heart becomes sick for the wealth therein described.

Cannon Ellacombe, in his "In a Gloucestershire Garden," points out that the names of this flower, both common and botanical, should have more appropriately been given to the *Leucojum* or snowflake. I quite agree with him; so let me quote what he says. "The pretty Latin name *Galanthus*—i. e. milk-flower—was invented by Linnaeus to distinguish it from *Leucojum*, which he restricted to the snowflake. I think it would have been better if he had reversed the names, calling the snowflake *Galanthus* and the snowdrop *Leucojum*. For I have no doubt that the *leucoion* of Theophrastus is our snowdrop; he describes

it as bulbous and the first flower of the year." To my own vision the clean whiteness of the snowdrop does not deserve to be called 'milk' white for it is pure and snow-like in its tone where as the snowflake is more of that tone of white which may be called milk. Then, too, the snowdrop is much more like a flake of snow in its shape, even when it is as large as the flowers of *G. Elwesii*, while the snowflake which comes later in the season when snow is no longer flaky but falls in large wet drops carries out the idea of a drop in both outline and texture. But it is centuries too late to cavil; and such persistent complainers as myself can only sit back and observe that even in those days botanists were a queer hard-headed lot. But why do we have to spell the snowflake's botanical name with a *j*? There is no such letter in the Greek and the name is pure Greek. In the Standard Cyclopedia of Horticulture this note occurs: "The name *Leucojum* was given by Linnaeus but he did not explain the application. (Perhaps the explanation is as given by Cannon Ellacombe in the quotation cited above.) The old Greek name, *Leucoion*, was given by Theophrastus to a plant now supposed to be a crucifer, like some stock or wall-flower. *Leucoion* is from *leukos*, shining, white, and *ion*, violet." My own comment to this is that if Theophrastus gave it to a "bulbous" plant which was "the first flower of the year" it certainly was not a crucifer.

I like to follow Farrer, who was certainly intent upon the correct spelling of plant names, and he gives the name in its Greek form with two dots over the *i* and does not even make comment upon his use of the Greek form. It is an interesting and fascinating phase of gardening, this delving into the whys and wherefors of



plant names; and as far as I have gone I find that Farrer is still the final authority and is always logically correct. By that I mean that his reasons are sound and that he had carefully gone into the record and history of the name before he made any correction. So all my garden notes and labels have the name in the form he used, *Leucoion*. But, alas how few can this garden boast of, except in seed pots—and that is always a risky thing to gloat over for between poor germination and slugs and what-not they may never get any further than the label.

So far I have been able to find only two of this genus offered in the American trade; *LL. vernal* and *aestivum*. And they are really the other way round for when one orders *L. vernal* one will always get *L. aestivum* which is the less desirable. At least that is what has always happened to me as seven lots of bulbs will bear me out. I only discovered that the *vernal* was the *aestivum* of American trade lists because I made a complaint when I got my last lot of bulbs and in reply the dealer sent me one little bulb which he had listed as *aestivum* with the request that I try it and report to him which was which. And it turned out to be the long sought after "*vernal*." Now the mistake is wholly inexcusable for the bulbs are quite different; that of *aestivum* being much larger and of a wholly different shape—an ovoid bulb from 1 inch to 1½ inches in diameter and it looks very much like a small sized daffodil bulb, whereas those of *vernal* are round and only about ¾ inch in diameter and could never in the world be taken for a bulb of a narcissus. The plants themselves are wholly different; *vernal* blooms in early April or late March "as the snowdrops are passing over" and is

never taller than ten inches, in the type, and seldom in the typical form is there more than one blossom to a stem. *Aestivum* does not flower until about a month later and is taller, from fifteen to eighteen inches, and carries several flowers to a stem and the individual flowers are smaller than those of *vernal*; also the foliage is quite distinct in that it is of quite a yellow tone of green seldom seen in bulbous plants. So completely are these two transposed in American horticulture that even in Mr. Wister's book of bulbs the picture of *aestivum* is entitled *vernal*. However in Mrs. Wilder's "Pleasures and Problems of a Rock Garden," on plate 53 both these plants are shown and labeled correctly. But her plant does not seem to be the typical form of *vernal* in that most of the stems carry two blossoms; so she must be fortunate in having either the variety *Vagneri* or *carpathicum*. The distinguishing features of these being that the variety *Vagneri* has the traditional green spots of the family while the variety *carpathicum* has shown an individual originality and uses yellow markings and also blooms after the other variety has finished. The late Mr. Lown had both these plants in his garden and while I was too late to see *Vagnerii* in blossom I did see the other one this spring.

Another white flower of the spring to give delight to both the senses of sight and smell is *Triteleia uniflora* which is also often found under the name of *Milla uniflora*. It is a low growing bulbous plant suitable to the rock garden and also to the edges of the border. The flowers are borne singly on four or five inch high stems above narrow long wavy bright green leaves which lie flat upon the ground throughout the winter for they start into growth in the late autumn. The

flowers themselves are star-shaped, much like the individual blossoms of the tobacco plant; they are of milky white with hints of soft lavender-blue on the main lines of the center of each petal and are deliciously sweet scented. It is a most engaging small delight and there is a variety *violacea* which is even lovelier than the type with blossoms of porcelain blue with a deeper blue mid-rib and more rounded and less sharply pointed tips to the points of the star. Both the type and the variety are industrious workers and shortly bring into being large families about the mother bulb until in a few years time there will be a thick mass of bulbs underground to be lifted and replanted to start other colonies. While this bulb comes from the Argentine it is thoroughly hardy as far north as New York; it is said to die out after several years but I have an idea that it dies only because it is not lifted and separated when it has become overcrowded. It has been long known in old gardens but had dropped from the trade lists until in the last few years when a few enterprising bulb-men have listed it again.

From Texas this year a little stranger came to delight the early days of spring and I hope will remain for many springs to come. *Anemone decapetala* is in Hortus given as a synonym of *A. caroliniana* but Farrer regards them as distinct species and judging from the first season in my garden I would say that the form from Texas is a lower growing plant with a more delightful flower. So I am retaining the name as listed by the dealer from whom I got it. Its foliage is ferny and much like a young celery plant and dies away soon after the bloom is past. The flower is less than six inches tall and when fully open is of snowy whiteness with a golden

tuft of stamens but the reverse of the petals is flushed with a delicate purple which in some of the blooms was of quite a reddish tinge. In the bud this purple tint completely covers the whiteness so that it is rather in the nature of a surprise to find the snowy blossoms where deeper colored ones were expected. In more moist soil then I can give it it is said to become rather a pest in that it sends out so many underground stems which form a net work of tubers but in my dry soil and in full sun I am willing to take a chance with it because it was so lovely in the early spring. Another year and I hope to see it blooming amid *Crocus Sieberi* but may find that the two bloomed together this year only because of the exceptional weather of last winter.

It is too bad that species of the crocus tribe are so difficult to obtain here; and when obtained are almost always wrong. There are several white forms of the various wild crocuses as well as a few white species which would make charming additions to our rock gardens if we could only obtain them. I never really knew how truly delightful a white crocus could look until this year when *C. biflorus* opened its snowy blossoms against the dark green of a much-berried cotoneaster. *Biflorus* is only white when it is wide open in full sunshine for its exterior is of one of the most enchanting color combinations I have ever seen. Against the winter background of the rock garden they are only so many more lines among the brown and blackish stems and twigs and stone chips. But they, even in the bud state, stand out in wonderful beauty when growing through some evergreen foliage such as my chance combination with the cotoneaster for then they are clear cut against the green. Those which I have, and there

seem to be many forms of this crocus, have three very distinct and heavy dark purple-brown veins which are but slightly feathered on a surface of white, but a white which is tinged so strongly by the color of the veins that it looks like very old ivory and is quite brownish near the lines of color as though the dye had run but only the brown and none of the purple. When the sun comes out all this is changed and the wide open flowers are dazzling in the purity of their whiteness; so purely white are they that one marvels how a color so deep as that of the veining does not show through on the inner surface of the segments. It is quite a large flower for a species and makes a distinct show which is not overshadowed by a larger planting of *C. Tomasinianus* blooming only a few feet away.

This year I noticed for the first time how widely this last crocus had self-sown itself. How seed could have gotten across the path to a distance of over seven feet from the drift is past my understanding unless my enemies, the ants, had dragged some of the hard seeds away in the hope they could use them as food. This crocus seems to take less time in maturing flowering corns from seed than any of the others which I have; for while both *CC. Imperati* and

*Sieberi* have given me many self-sown seedlings none of them have blossomed as yet.

There have been of late many complaints about *Eranthis hyemalis* not living beyond its first blooming season. In all probability the original roots do not, having been weakened by their long journey from Europe and having spent what energy they had left in flowering. I have found that each one of three separate plantings flowered well the first year and then made hardly a show of life the second; but the third season has always given me a mass of gold which increases each year. The reason is that it self-sows and in that second and barren year the seedlings are getting ready to make the earth golden for the next season. In each of the three places where I have them they have acted the same and after the third year have gone on increasing and multiplying unless disturbed. And this is probably why others have not been able to keep them. For the places where they are planted must *never* be stirred or dug for the small tubers are easily brought to the surface and so dry rot. Then too they do not like full sun during their resting period even though they love the tempered sunshine through the leafless stems of shrubs while they are in flower.

## A Book or Two

*The Fantastic Clan.* By John James Thornber and Frances Bonker. Published by the Macmillan Company, New York, 1932. 194 pages, illustrated. \$3.50.

The eight chapters of this rather poetic book are captioned with such fantastic titles as "Miniature Fortresses on the Desert," and "A Desert Graveyard," each chapter having to do with a particular genus or group of cacti. The title of the book is well chosen, and on the inside covers is a sketch map of the Southwestern States giving a rough, or perhaps one should say a very rough idea of the distribution of about a score of cactus species.

The authors have gathered a great mass of interesting facts and entertaining fancies about these weird spiny natives of the Southwest. Their highly colored pictures of the desert in bloom, though written often in superlatives, ring true in fortunate readers, like myself, who have been there in the flesh. The notes on propagation which follow each of the seventy-five species described will be welcomed by interested persons who are in a position to grow cacti in their own gardens. Nevertheless, the book suffers much from a disjointed arrangement of subject matter, for in each chapter general descriptions of each of the species of that group are followed later on in the same chapter by more paragraphs on the same species, telling how each grows, how to identify it, and how it may be propagated. If all the data for a given species were in one place it would be simpler and more usable.

The common names manufactured for the occasion for many of the cacti are rather cumbersome. Lack of careful

editing is shown by the use of the word "varieties" for "species" on page 2, by a reference to "Dr. John Nelson Rose" on page 81, when Dr. Joseph Nelson Rose is the name intended, and by the omission, in the index, of the scientific names of many of the cacti mentioned in the text, while others are included.

P. R.

*Roadside Flowers of the Pacific Northwest.* By Drew Sherrard. Metropolitan Press, 40 North Ninth St., Portland, Ore. 32 pages, illustrated. With four packets of seed. \$1.00.

This is a very engaging small book, that intrigues from the moment of its arrival, by the sound of the seeds shaking in their packets, in the back part of the book. That excitement allayed, one turns to find what Mrs. Sherrard has to say.

It is said simply and without too much technical nonsense that would ruin the real usefulness of the book, for the very persons, for whom it is designed. It is written for people who go riding or driving and like to know something about what they see by the way. For their convenience, it has been given divisions, that indicate regions according to their physical character, marsh, dune, alpine, etc. Within these sections, the discussion takes a chronological order so that we begin and end with the seasons. And finally there are lists of flowers for which one should look when travelling through special region, with a parting list of books to consult further when one is well inoculated and gone beyond the first stages of flower-viewing.

B. Y. M.

## The Gardener's Pocketbook

*Pentapterygium serpens* Klotzsch.  
(See page 327).

*Pentapterygium serpens* comes from the Himalaya Mountains and was first cultivated in 1884.

It is a small graceful shrub belonging to the *Vaccinium* order, with slender drooping branches, and is said to grow two to three feet high. The little, evergreen, highly polished, deep green leaves, only 9/16 of an inch long and 3/16 of an inch broad, are very ornamental and the quaint 2-inch flowers hanging from the undersides of the branches are simply marvelous. More than anything else I can think of, they resemble huge, elongated drops of blood. They do not drop, however, for a long time but remain fresh and perfect on the plant for several weeks.

The shape and structure of the flowers resemble those of a *Vaccinium* (blueberry bush) to which it is closely related. When looked at nearby it will be seen that they have certain symmetrical V-shaped markings of very dark red on the richly colored corollas, which greatly enhances their handsome appearance. The flowers come early in the year, February, before flowering plants are plentiful and so they are doubly valuable.

The young growths and leaves are quite red at first and change to bronzy pink before they take their final deep green coloring.

I imported a plant of *Pentapterygium serpens* from England in 1929. It is now 18 inches high and 24 inches broad and is living in a 4½ inch pot. It grows in a fairly sunny position in my tiny greenhouse from October to May, but during the summer months a slatted shade keeps off the

too hot rays of the sun. My plant lives in a mixture of peat, loam, and crushed stone. The winter temperature of my little mixed greenhouse is usually about 45-50 degrees with a rise of about 5 or 10 degrees during the day.

*P. serpens* is easily propagated. A 3 or 4 inch cutting put in sand with bottom heat and not much shade in spring, just before growth starts, rarely fails to root.

It is also easily accommodated and seems happy and gives its wonderfully beautiful flowers even in a small pot. It is ornamental and unusual looking, both in and out of bloom. This handsome plant was brought into cultivation over a hundred years ago. Why is it so scarce?

MARY G. HENRY.

Penna.

Edgings for the Formal Border.

There is always room for argument as to whether a border of perennials is better planned with an edging its entire length or whether the bed is better arranged without a continued line at the front. But if the garden is formally arranged, with the planting very definitely spaced and balanced, then edging plants can certainly be used. And further, these should be clipped to uniform size and form for the length of the bed. Many plants may be used for irregular edgings, but for clipping the list is not very long.

Even where Dwarf Box is hardly some other material must be used along the lesser and cross walks. Dwarf Japanese Yew (*Taxus cuspidata nana*) is the hardiest and darkest in color of all the dwarf conifers.

A lighter color is given by Dwarf Hinoki Cypress (*Chamaecyparis obtusa nana*) and Little Globe Arborvitae (*Thuja occidentalis nana*) or Tom Thumb Arborvitae (*T. occidentalis ellwangeriana*) are of even lighter color. With a little extra care in training at start the Baltic Ivy (*Hedera helix baltica*) and Baby Wintercreeper (*Euonymus radicans minimus*) make good lines of green, either clipped to stiffness, or attached to the brick or concrete coping that holds the soil of the bed above the walk. Perhaps better even than Box is the little evergreen Warty Barberry (*Berberis verruculosa*).

Of deciduous shrubs the most used are Box Barberry (*Berberis thunbergii minor*), Lowdense or Pygmy Privet (*Ligustrum ibota nanum*) and Dwarf Cranberrybush (*Viburnum opulus nanum*). Trial should be made of some of the small Spireas as *Spiraea lucida*, and Mountain St. Johnswort (*Hypericum buckleyi*) clips well, but with loss of blossoms.

Of evergreen perennials several of the sweet herbs have long been used, as True Lavender (*Lavandula officinalis*), when hardy, and Lavender-cotton (*Santolina chamaecyparissus*) in very light gray green.

Chamaedrys Germander (*Teucrium chamaedrys*), when clipped, gives as good a hedge as Dwarf Box, and of darker color. It is more hardy; and if burned a bit at the top by winter the new spring growth will soon fill in again. Mussini Catnip (*Nepeta mussini*) clips well, with much of the Santolina color; Hyssop (*Hyssopus officinalis*) makes a tiny willow hedge, rather lacking in foliage; Common Thyme (*Thymus vulgaris*) or the erect forms of Mother-of-thyme (*T. serpyllum*) also give a dulled green of fine texture; *Micromeria croatica* and Winter Savory (*Satureia mont-*

*ana*) are rather like the Germander, but not as vigorous. With a little care good edgings can be made of Garden Sage (*Salvia officinalis*), Tarragon (*Artemisia dracunculus*) or Rosemary (*Rosmarinus officinalis*) or even Wild Marjoram (*Origanum vulgare*). These will give fragrance and variety in color and texture in the garden, and be a change from endless lines of Dwarf Box. All these herbs are easily obtained, and anyone may try them. There are many more evergreen Mints, as yet to be obtained only as seed from foreign gardens. One of the minor tasks here will be to get these, test for hardiness and ease of culture, and then see how well they will stand clipping.

Other evergreen perennials make good foliage lines. Tenore Candytuft (*Iberis tenoreana*) is my favorite, but Grass Pink (*Dianthus plumarius*), Common Thrift (*Statice armeria*), Coralbells (*Heuchera sanguinea*) or *Alyssum gemonense*, may be used, but in irregular rather than in neatly clipped lines. Pachysandra, *Vinca minor*, *Cerastium tomentosum* or *Phlox subulata* may be used, but they require much manual labor to keep roots or tops within bounds.

Perennials that are deciduous for six months are not so useful, except in summer gardens. In shaded borders, where the evergreen Mint kinds do not grow so well, I have specially liked lines of Fringed Bleedingheart (*Dicentra eximia*) for a fine texture, and Lance-leaf Plantain lily (*Hosta lancifolia*) for wider leafage, and Chives, Russian Iris (*Iris ensata*) and some of the smaller ferns make good foliage lines. But these cannot be clipped, and do not belong in the most formal arrangements. For summer use a few of the annuals of long bloom are very good, and even may be sheared a bit. Instead of using



*E. T. Sailer*

[See Page 325]

*Pentapterygium serpens*

greenhouse material I prefer dwarf Ageratum in blue and white, French Marigold in the many dwarf compact forms, Edging Lobelia in blue and white, and for more loose effect the little Swan-river-daisy. Many annuals are of too brief bloom, too limp

in their stems, or too uneven in growth to be of real service where a very definite effect of regularity and uniformity is desired.

STEPHEN F. HAMBLIN.  
The Lexington (Mass.)  
Botanic Garden.



*Lilium Willmottiae*. (See page 329.)

This lily, named for Miss Ellen Willmott, famed for her immense book on roses and for her horticultural achievements in many fields, is one of the several species, upon which one may depend to bring to the border lilies of the color that the old Tiger Lily has long provided. To be sure, none of them are of precisely the hue of the Tiger Lily, but they are close enough and have flowers of the same general type and carriage.

It is one of the easiest to raise from seed and comes quickly into flowering size. Like many other lilies it is weak-stemmed through its early life, always requiring a stake and even in later life when it has developed its mature size, with an inflorescence showing many more flowers than that illustrated, a stake is of great value, unless the plant can grow up through shrubs and use them for support.

The flowers are a rich orange color, are spotted with a reddish brown and appear about two weeks ahead of those of *L. Davidii* its nearest relative and considerably before those of *L. tigrinum*.

H. M. Fox.

New York

*Allium stellatum* Fraser.

(See page 331.)

In the procession of flowering onions that are useful in the small border, there is none more showy in the first weeks of September than this native of the Great Plains. All through the summer the sheaf of leaves, more or less like those of our native *cernuum* of the eastern states, have made a mass of green in the lea of a shrub of *Erica stricta* and have watched the passing of displays of *Viola pedata bicolor*, innumerable crocus species, some tulip species and

a vigorous clump of *Brodiaea lactea*. Now when there remain only the last flowers on *Calluna vulgaris*, this onion hangs out its nodding heads of violet pink flowers that will keep in good condition well on until the end of the month. Here it rarely achieves seed but the bulbs spread slowly from the base like any other descent plant and do not spread wildly in all directions like some of the more insidious members of the genus. So far it has never shown any inclination to produce bulbils in the flower heads.

Across the path, *Allium odorum* shows its heads of pure white starry flowers, with bright green pistils, standing erect in their heads and not passing through the changes of positions so common between flowering and seeding in many onions. The name, a sort of poor botanical pun, in the case of this species, refers to the sweet scent of the flowers and not to the familiar odor of the leaves that arises from any species when man-handled. Unlike *stellatum*, this species has always hurried all of its flower stalks into bloom at once, so that the effect is not so long. Washington, D. C.

*Graptopetalum Orpetii* E. Walther.

(See page 330.)

The subject of this note is a little succulent rock plant from Arizona, not at all gaudy, but of much charm. The small genus of the Stonecrop family to which it belongs, has some affinity to *Sedum* in the flower, though leaf and habit are more like those of an *Echeveria*.

The species is of quite recent discovery, having been found in 1929 in the vicinity of Superior, Arizona, by Edward Howard of Santa Monica, California, a collector and explorer well known on the Pacific Coast for his knowledge of rare plants. The



*Edward Van Altena*

*Lilium Willmottiae*

[See Page 328]



*Graptopetalum Orpetii*

present writer, happening to see it in flower in the garden of Victor Reiter, Jr., of San Francisco, first noted its generic status, but it remained for the botanical acumen of his friend Eric Walther of Golden Gate Park to reveal it as a new species, with the result that it was duly described in the *Journal of the Cactus and Succulent Society* (April, 1930) and named in honor of E. O. Orpet of Santa Barbara, who had first cultivated it.

In the short time that it has been known the little plant has gained for itself many friends by the neatness of its rosettes of light-green leaves, reddening in exposure, the willingness with which it produces its white, prettily red-speckled flowers and its general ease of cultivation and increase.

It makes an excellent dwarf rock garden plant outdoors in warm dry climates and a charming little pot-plant for the succulent-house elsewhere.

The genus *Graptopetalum* has five other known members, two of them, *G. Bartramii* Rose and *G. Rusbyi* Rose, being also native in Arizona, while two others, *G. Weinbergii* E. Walther (*Byrnesia Weinbergii* Rose) and *G. amethystinum* E. Walther (*Pachyphytum amethystinum* Rose) have only recently been recognized as belonging to it, though having for some time been well known to amateurs of succulent plants. The name refers to the "graphic" markings on the petals present to a greater or lesser degree in all the species.

JAMES WEST.

California.



L. A. Guernsey

[See Page 328]

*Allium stellatum*

*Iris innominata* (See page 333.)

A new western iris, published in 1930 as *Iris innominata*, made its horticultural debut at the Laurelhurst Flower Show in Portland, Oregon, in May, 1932. It is a dwarf yellow iris, suitable for rock garden use. The flowers are borne on stems from four to six inches high, and are a soft golden apricot shade, the sepals delicately and rather faintly pencilled in brownish purple. The leaves are of varying lengths, many much longer than the flower stalks, and are dark green and somewhat leathery in texture.

Mrs. John R. Leach, a botanist of Portland, has made a study of this iris in its native habitat, in Southern Oregon, and has in her herbarium a large number of specimens collected during several years, showing great variation from the published type. Some of the specimens are as much as twenty-one inches tall, and they vary in color from shades of yellow and apricot to a great range of violet and orchid shades. Mrs. Leach reports that the plant is taller when grown in shade and rich ground. In the localities where the type plant is found without variation, it is growing on gravelly, well-drained hillsides or banks of rocky soil, in half shade or sunshine.

It takes kindly to cultivation, as the photograph shows. The two plants in this picture are growing in a west-sloping rock garden, in a well-drained gravelly soil containing some leaf mold. They receive no water after the seed is matured, but have ample moisture during the blooming season. Partial shade cast by an oak tree some distance away gives some afternoon protection. The plants produced thirty-five blooms this year, remaining in bloom more than a month.

Like most western irises, this one can be flowered in two years from seed. The type, that is, the dwarf golden form, if from a locality where it is the only form, comes true from seed; but seed of a yellow plant from a locality where there are several variations, does not always come true. Many natural hybrids are found among the irises, and there is an opportunity for some interesting experimentation in artificial hybridization of such species as this and the coast iris of Oregon, *Iris Douglasiana*, or the common *I. tenax* of western Oregon and Washington, which shows many color variations.

DREW SHERRARD.

#### *Tulip Species.*

No doubt most of the readers of our magazine, already have the tulip species mentioned in these informal notes. There may be a few however, who have not, to whom their flowering would give as much pleasure as it did me. Having grown the more usual types, *Clusiana*, *sylvestris*, and the less usual *praestans*, *praestans* Tubergen's Variety and *viridiflora praecox*, it was with the keenest curiosity that I waited to see what the new ones, especially two of them, would be.

*Tulipa Kaufmanniana* Brilliant opened on April Fool's Day, its extreme earliness being its greatest asset. The soft gray foliage was lovely, three leaves of medium length and width on a slender stem, holding the flowers rather low for their size. Its color, red with pink or purplish tinge, did not appeal to me. In just the right setting, however, it would be a desirable addition to the list of plants for gardeners seeking early bloom.

*Tulipa Fosteriana* came next on April fifteenth, opening a most gor-

*Iris innominata*

[See Page 332]

geous flower. The broad leaves, three to five, were veined somewhat like on sort of watermelon rind. This foliage made a well-proportioned background or setting for the large, red flowers which had a black disc and were of splendid texture, with a varnished effect inside. Although a shade darker than *Tulipa praestans*, Tubergen's Variety, the color was in perfect tone with it. To gardener's looking for a stunning, carrying color to place where it can be seen from the house, though at some distance from it, *Fosteriana* is nominated as a conspicuously worthy candidate.

*Tulipa Eublen* and *T. linifolia* did not open until the thirtieth, and these are the two that are more different and less well known.

*Tulipa Eublen* needs another year and fuller notes. Unfortunately, there is the possibility that the name was misprinted and should have been *Eichleri*. An unusually dry April which intensified the dryness of a rather dry location, was undoubtedly responsible for the blasting of three of its five buds. It was an exceptionally charming small tulip. Its color was very close to that of *T. praestans* Tubergen's Variety and in perfect harmony with *Fosteriana*. The foliage was of the soft gray green so pleasing with such vivid flowers. When a bloom that had been opened in the house, was carried out and set upon the stem from which it had been cut, the total height was eighteen inches.

*Tulipa linifolia* was tiny and to my surprise, was new, even to some of

the more experienced gardeners round about who grow the more rare plants and bulbs. Its foliage, again the soft gray green, suggested the form of an octopus because of its exceedingly narrow, undulating leaves lay upon the ground radiating from the main stalk. The cute little flower, with petals only an inch and one quarter long, was scarlet. Again perfect harmony with *praestans* Tuberger's Variety, *Eublen*, and *Fosteriana* was noted. Six inches was its full height. For the gardener who delights in the perfection of small plants and flowers, for the garden in which space is an important factor, and for the rock garden, *linifolia* is a gem.

Two good reasons immediately come to mind when one is asked why one should have three species of practically the same color when space is limited. The plants are of different sizes and they bloom successively, thus continuing their share, large in proportion to their size, of pleasure and inspiration in the early spring garden.

HARRIETTE R. HALLOWAY.

New Jersey.

*Nemastylis acuta*. Small.

(See page 335.)

My knowledge of this plant is confined to my experience with it in this particular locality, and having escaped the iris bug I have not pursued study of the order far enough to speak with certainty of its relation to other irids or of its synonyms. I do know, however, that when happily grown it is easily near the top of any list of North American wild flowers.

It's round, flat flower, two or more inches across, with broad, overlapping segments, clean, sky-blue color, good texture, and indescribable air of dew-fresh innocence make it superlatively appealing to all who are not wedded

to mere splendor. I instinctively place it with such things as the better cypripedia, *Calopogon pulchellus*, fringed gentian, *Iris cristata*, and the like.

While it will grow and flower, given a year in which to adjust itself to the change, almost anywhere where winter temperature doesn't fall below 15 below, F., it shows unmistakable preference for calcareous clay, good drainage, and constant moisture throughout the growing season—March 15th to July 1st, here. It begins blooming, here, about April 1st; sometimes later but seldom earlier, and the season lasts about 30 days, which includes old, young, favored (in location) and unfavored.

The brown, papery-sheathed bulb,  $\frac{1}{4}$  to 1 inch in diameter, lies 3 to 5 inches below the surface of the ground, leaves 1 to 6, grasslike, narrow, up to a foot in length, conspicuously plaited, lengthwise, like those of the tigridias. Flowers, 1 to 5, on a simple or branched stem, opening successively, rarely two open at the same time. Leaves often twice as long as the flower stem, which varies, with soil and exposure, from 3 to 9 or 10 inches in height. Corolla segments almost identical in size and shape, and identical in color; broadly lanceolate. Often there is a darker zone at the mouth of the pale throat. Scentless as far as I can determine, except an elusive suggestion of raw silk.

I have grown it in pots and in the flower garden, in a sandy loam mixed with limestone gravel, and where the moisture is constant during the growing season it appears quite as happy as it does in its native clay, and it may be that its choice of that medium is due more to sub-irrigation by seepage than to soil texture.

W. A. BRIDWELL.

Texas.





B. Y. Morrison

*Nemastylis acuta*  
A Small Example

[See Page 334]

## COLOR AGAIN

The juxtaposition of B. F. Cureton's comments on color in daffodils and Mr. Shull's note on a new color type in iris conveys a strong editorial hint which moves me to send you this account of the behavior of the daffodil Masterpiece in my garden. To those not yet smitten by daffodil madness I would say that this variety produces a delightfully small flower of sure, crisp outline. Its perianth is almost perfectly circular with rounded segments of heavy texture and satiny surface, a pure poeticus white. Against this its small cup finely fluted turns back quite flat, a red disk uniform in color throughout. This is its best, its type form, but this form does not always develop in the garden. For the first few years my bulbs, planted in a deeply dug bed gave me type flowers but not enough of them. So I divided them and put them under a greedy *Lonicera maackii podocarpa* hoping by shade to save the cups from burning. The next spring I did not have one single flower of type color; instead the cup was banded, red on the edge, then a band of yellow which graded down into a green in the throat. The second spring after transplanting I hoped for type flowers again, but no, again only banded cups appeared. When all but three or four buds had opened there came several days of rain, a gentle, soaking rain that every gardener loves. A day or two later the few remaining buds opened and lo! perfect, uniformly red cups spread themselves before my delighted eyes. Then a great light dawned upon me. As long ago as 1922 I had read Mr. Shull's article on Color in the Iris Family in the Bulletin of the American Iris Society in which he says that in irises the reds are sap colors. Perhaps, thought I, they are sap colors always, or at any rate they may be

in daffodils and if so, then the red color might be expected to vary with the amount of moisture available to the plant. So again I dug the bulbs and this time I had enough to try them in four different locations—at the back of a moist border, in a deeply dug bed which has afternoon shade, in a bed with primroses, not deeply prepared but rich in humus, and along a fence where there had been no preparation beyond digging over one spit deep. In the spring I watered all the daffodils. They grow on a hillside which dries out rapidly and that "wave of summer heat" in April often lays them flat upon the ground. Now it is my habit to water at the first suspicion of dryness, not lightly but with a ring sprinkler which runs for at least an hour in one place before I move it. My idea is that if I can keep the beds full of moisture until flowering time it might not be necessary to water when they are in bloom which always soils the blossoms. Since I have been doing this my plants suffer less from unseasonable heat and Masterpiece gives me cups of uniform red every year in every one of the situations in which I have it.

But mystery shrouds this matter of color. In the case of one flower I have empirically hit upon a procedure which seems to work; it by no means follows that all red colors are intensified by increase of moisture. That lovely, dependable little polyantha rose, Gruss an Aachen, in early June gave me flowers with hardly any color, just cream, like a pale Ophelia, but now, at the end of July after prolonged drought when they have been watered only once a week, the blossoms are as pink as Madame Butterfly at its deepest. Then Phlox, pink and red varieties like Elizabeth Campbell, Enchantress, Jules Sandeau, Thor, seem to vary but little with moisture but



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*Valeriana officinalis*

come slightly lighter in the shade. On the other hand, Antonin Mercier will be almost pure white in full sun but show its typical lavender in the shade, and lavender in irises is also a sap color. Would that Mr. Shull might help the rest of us to see a little further into these color mysteries!

MARY JUDSON AVERETT.

New Jersey

*Valeriana officinalis* L. (See page 337.)

Valerian or garden heliotrope, smells pleasantly with an acrid, strong quality something like pipsissewa and not in the least like heliotrope. It is a tall imposing plant, rising to five feet or more with stiff stems, shaggy leaves and terminal heads of tiny, whitish flowerets that send forth their pervasive and distinctive perfume. Since the plant is filmy and open in its growth, it is a good plant for the back of the border, combined with delphiniums, or with lupines, both scentless plants. With us, it grows on a clay soil and has increased considerably during the last few years. It may be propagated by dividing the roots and presumably by seeds. Plants are available at many nurseries in the country, for the garden heliotrope is a popular garden perennial. Beside lending a scent to the garden, it is useful in combination with colorful but scentless flowers in the house. Now, with the increasing interest in fragrant flowers, that plant will no doubt become more prominent.

The stalk is hollow and rigid, standing erect and well branched. The leaves are divided into feather-like divisions, not soft like an ostrich feather, but stiff like feathers formerly used for quill pens. The leaflets grow out from the rachis which is dark green with purplish ridges, are sessile, longish ovate-oblong with margins deeply and irregularly toothed. There

are from seven to ten leaflets alternating along the rachis which is about ten and one half inches long. Many of the leaves of the plant cluster about the base of the stalks. The flowers are tiny, whitish, not one eighth of an inch across, sometimes pinkish or lavender and are arranged in a broad, flat corymb.

H. M. F.

New York

*Ornithagalum arabicum* L.

*Ornithagalum arabicum* is a very handsome and popular spring-flowering bulb. In Bailey's Standard Cyclopaedia of Horticulture, its home is given as the Mediterranean Region, and it is spoken of as a "tender kind . . . probably the showiest of the genus." It can be obtained easily from almost any first class dealer in bulbs.

The pretty, fragrant flowers are over an inch in diameter and grow in a five or six, or sometimes more-flowered raceme about eighteen inches tall. The shiny black pistil against the petals makes them appear very white and no one can deny the effectiveness of a black and white combination.

It has done very well in the open here in Gladwynne, Penna., and seems to be entirely hardy with not even a leaf for protection. I planted them about six inches deep in the grass in good loam on a hillside sloping towards the southeast. There is a stone wall nearby which gives protection from the north winds and they are growing in full sun. I think some such shelter is highly desirable for the flowers are of good size and the slender stems might easily be broken.

*O. arabicum* is extremely lovely and quite different from the usual hardy, spring-blooming bulb. As an outdoors flower, where it is happy, as a

cool greenhouse pot plant or as a cut flower to decorate a room, it can hold its own with the best.

MARY G. HENRY.

Penna.

#### Autumn Notes.

Last fall being a long and salubrious one, gave better opportunity for the late blooming perennials than we have had in a number of years. One of the fine newer perennials proved to be the Korean chrysanthemum, *C. coreanum*. This bloomed from late September into November. It is a fine garden plant with handsome foliage all season and in the autumn sending up well and widely branched stalks to a height of three feet carrying a single white daisy-like bloom about two inches across turning to pale pink with age. It is, in effect a glorified *Chrysanthemum uliginosum*, but with far better effect and finer bloom and lacking the coarseness of the latter. It is iron clad and spreads rapidly into a wide clump.

A little iris sent out by English firms under the name of *Iris tricuspid* has aroused much interest and admiration. A botanist in the Yearbook of The Iris Society (English) characterizes it as a new species. The late W. R. Dykes expressed the opinion that it was a far northern form of *I. setosa*. The standards are reduced to mere tiny points. Otherwise, it has much the effect of a miniature Siberian, being of dwarf stature, about ten inches in height, a rapid grower and increaser in rather moist heavy soil, in varying shades of blue purple. The foliage is rather wide and ribbed and somewhat twisted and remains fresh and green all season.

*Primula Sieboldii*, after a lapse of years, is again appearing in commercial lists, although only in a few. One

of the hardiest, handsomest, and most easily grown of the primulas, this species seemed to have mysteriously disappeared although for what reason this writer never could ascertain. I had it for a number of years when it was listed by American Nurserymen. The plants were lost in digging over the garden, presumably, as this primrose had a trick of losing its foliage in summer. All efforts to replace it failed. No plants were offered and seed, which was seldom offered, when purchased invariably produced not *Sieboldii* but *cortusoides*, of the same botanical group. This proved true both in American and foreign seed. Some three years ago the firm of Perry in England offered seed and this proved true. Other primula specialists did not list the seed at all.

Although the Scotch in me was never anything but temporary, thistles have always had an appeal. One of the stateliest of the thistle tribe available for garden purposes, if they are tolerated at all, is the giant cotton thistle, *Onopordon Salteri*. This is a biennial and its chief beauty is not its bloom but its foliage and white cotton-covered stem. In its first year it makes a handsome subject in late summer with huge gray green acanthus foliage adorned with spines. In its second year it sends up a stout blooming stalk to a height of six feet under good growing conditions and is a striking object. It should be cut down immediately after the blooms develop as it speedily becomes rusty and disreputable in its seeding stage. If allowed to seed it becomes a perennial pest as there will be Salter thistles all over the premises. The only safe way is to cover one head to save for seed and rigorously eliminate all others.

S. R. DUFFY.

Illinois

*Narcissus Notes from Maryland*

The very high prices asked for new varieties of narcissus are necessary to repay, in a measure, the great cost of production. It requires many years to produce a new variety and it is doubtful if more than one plant in 500 (maybe one in a thousand) is worth putting on the market. A noted English breeder once stated that an examination of his records showed that only about this proportion of his seedlings was outstanding. It is not worth while trying to introduce anything but those which are superior in some respects to existing varieties in the same class. With more than 3,000 varieties now listed it become exceedingly difficult to produce topnotchers.

From four to seven years must elapse after making a cross before the seedling bulbs grow to sufficient size to produce their first flower. Then comes the heartbreaking task of discarding many wonderfully fine flowers—great improvements on present commercial sorts—but no better than hundreds which have not yet been offered in quantity. The hybridist will find many plants among the new seedlings which he will wish to hold on to for various reasons, but which have no future prospects as commercial flowers. The few bulbs which are finally selected for increase represent, therefore, a considerable investment of time, labor, and money, and must be sold at a high price if the producer is to be repaid for his efforts.

The breeding of new varieties of plants holds a great fascination for a few folks but is not an inviting field for profit. Too many failures are involved; too great an investment is required; there is no market outlet for the discarded plants and their fertilizer value is little more than nil. While the money return from produc-

ing a new plant of outstanding merit is small there is a satisfaction in such work which can not be measured in dollars any more than can the raising of a noble son or daughter.

With a wise choice of seed parents there need be few "weeds" produced. Last spring I flowered several hundred narcissus from crosses in which King Alfred, Weardale Perfection, Van Waveren's Giant, Glory of Noordwijk, Golden Frilled, and Great Warley were the parents. The great majority were big, bold, upstanding yellow and bicolor trumpets. A very fine white trumpet and a couple of remarkably good *Incomparabilis* were observed and will be selected out this season, as well as a few of the others for further testing. From some crosses no good flowers were produced.

*Triandrus albus* is a tiny white trumpet species with a drooping flower and of delicate constitution. Its pollen is very potent, and when used on good flowers it produces hybrids which are fascinating for the garden. Crossed on Madam Plemp, a good old bi-color trumpet, and on Van Waverens Giant, an enormous yellow trumpet, I had several last year which I shall keep for the garden. They have straight or slightly tapering yellow trumpets 2 inches or more long, with an end as sharp as if cut off with scissors. The long and slightly reflexed petals give the flowers a grace not possessed by either parent. These hybrids are easily raised but, unfortunately, are generally short lived. Because of their beauty and value for decorative purposes it is worth while making a few crosses each year.

The use of good parents is essential for the breeding of better varieties, but many fine narcissus are of little or no value for breeding because of sterility. An inspection of my breed-



ing records covering several years shows that very few of the many varieties used can be classed as first-class breeders, and some of these are likely to produce progeny of no particular value. But judge from the production of abundant viable seed the following have proved best as seed and pollen parents: Yellow trumpets—Emerson, King Alfred, Robert Sydenham; white trumpets—Beersheba, White Emperor; bi-color trumpets—Weardale Perfection; species—Jonquilla, Triandrus albus.

As seed parents the following have been most productive: Yellow trumpets—Baden Powell, Giant Muticus, Golden King, Monarch, Moonlight, Obvallaris, Thackery, Whistler; white trumpets—Eskimo, Madam de Graaff, Mrs. Ernest H. Krelage, Nevis, Trap-pist, White Conqueror; bicolor trumpets—Aeolus, Glory of Sassenheim, Lady Primrose, Sir Ernest Shackleton, Spring Glory. In the Incomparabilis division Golden Frilled, Great Warley, Lady Margaret Boscowen, and Pilgrimage have been the best, and among the Barriis, Beacon and Red Beacon. Hera, The Fawn, and Tantalus are outstanding among the Leedsiiis, and Cassandra and Thelma in the Poeticus section.

As pollen parents the most potent have been Bokhara, Bulwark, Copper Bowl, Fortune, Godolphin, Kantara, Killigrew, Naxos, Nobility, Suda, Tenedos, and Treskerby.

Most of the Barrii varieties, and all the poets, blossom so late that in the ordinary year they produce little seed, probably because of the effects of the hot, dry weather which prevails in the vicinity of Washington in late April and early May.

The season has much to do with the results of pollination. A cool spring with an abundance of moisture results in a good seed crop, whereas

dry warm weather, or a hot spell, results frequently in obtaining no seed from a perfectly good cross. Because of variations in the weather, and possibly also because of the limited number of crosses made, some varieties have proved of uncertain behavior. Thus in 1928 Bernardino produced an abundance of seed from four of five crosses, and from three of four crosses made in 1929, but in other years it has set little seed.

#### OUTSTANDING VARIETIES

Varieties which called forth the most enthusiastic comments from visitors to my collection last year were Therapia and Seraglio, bicolor Barriis, and Galopin, a bicolor Incomparabilis. Therapia produces a very large flower of much substance with a broad, flat, pure white perianth, and a large, almost flat, bright-yellow crown broadly margined with bright orange red. It is a tall, strong flower and promises to be satisfactory in increase. Seraglio is essentially a show flower, quite similar to Therapia; a tall strong plant, very free flowering, and an exceptionally rapid increaser. Galopin is another of the big fellows—broad, well-formed, rounded white perianth, and a large and intense solid red cup. It also is a strong grower and a rapid increaser. A discriminating English grower has said that it is the finest of the famous red-cupped series produced by the late Mrs. R. O. Backhouse, who produced many marvellous flowers.

For rapid increase I have never met with anything to compare with Helios, an extra early, large, yellow Incomparabilis. It has broad, overlapping, shovel-pointed petals which stand at right angles to a large, broad cup with serrated brim. It is a flower of excellent substance and very lasting—remaining in condition for two



weeks or longer. I imported a bulb in 1928. The next spring it produced five flowers; in 1930, ten, and on digging I had sixteen bulbs, many of them small, of course. Upon digging again last year I had nineteen bulbs.

#### SOME STRIKING VARIETIES

Prince Fushimi, a bicolor *Incomparabilis*, is one of the showiest *Narcissus* in the garden. Very large flower with solid, pure white perianth, and a large, open, globular cup of apricot orange shading to cream or ivory white, prettily crinkled and flanged. It is a remarkably distinct and beautiful flower—a glorified *Will Scarlet* of larger size and better habit. Of only medium height, it is satisfactory in increase.

Ace of Diamonds is said to be the finest red-eyed *Poeticus* in commerce. In color of eye it surpasses any of the class in my collection, and it is as satisfactory in every other respect. It closely approaches perfection in form and has broad, overlapping snow-white petals of wonderfully smooth texture and quality. The most striking characteristic about this variety is the eye, which is blazing hot orange scarlet throughout.

Deep, uniform yellow, as exemplified by *Maximus*, *M. J. Berkley*, *Prospector*, and *Yukon*, has been much sought after in yellow trumpets, but many prefer the extremely light, delicate yellows at the other end of the scale. The light yellows lend themselves better to floral arrangements. *Moonlight* is one of the best of the light-yellow trumpets. It has a long, flaring trumpet well expanded at the brim, which is deeply serrated and rolled back. The petals are broad, well overlapping, and shovel pointed. It is a bold flower, well poised, and the plant is vigorous and prolific.

*Circlet* and *Dosoris* are bicolor *Bar-*

*riis* which, in length of stem and size of flower, can be classed as medium, but they are very prolific in bloom and increase and are very useful because of these characteristics. *Circlet* is a very early flower for this class, of fine shape, with broad, round, overlapping white petals of good substance, and a large, flat, yellow crown edged with bright orange. *Dosoris* is a brilliant garden flower which frequently produces two blooms on a stem. It has round, white petals, and a flat, orange-red crown.

For extreme delicacy and refinement *Mystic* and *Silver Salver* are difficult to excel. They belong to the subsection which has been aptly termed flat-crowned *Leedsii*. *Mystic* is from a cross between a *Leedsii* and a *Poeticus*. The perianth is white, and the rim of the flat crown a dainty, pale orange pink, a tone more charming than any description can convey. It holds its color fairly well but, like others of delicate coloring, should be cut just before the bud opens. *Silver Salver* is in appearance a finely formed white *Poeticus*. The flower is flat and snowy white with the exception of a tinge of dainty green in the eye. It is a thing of ethereal loveliness and supreme refinement. Both are tall plants and good doers.

#### THE 1932 DAFFODIL SEASON

Since the above notes were written the 1932 daffodil season has come and gone, bringing its meed of pleasures and satisfaction and not a little disappointment because of the vagaries of most unusual weather. The early varieties opened in late February and the last (*recurvus*) and an unnamed poetaz faded after May 15. Owing to almost continuous cool weather the flowers lasted remarkably well, and the red cups held their color better than common.

Obvallaris, the old Tenby daffodil, continued in flower from February 27 to the first week in May, again showing that, because of the production of secondary flowers, it has a wonderfully long blooming season. It is a very desirable small yellow trumpet for naturalizing.

Bernardino did much better than common. It was replanted last fall, flowered profusely, and developed an abundance of the pleasing color for which it is somewhat fickle.

Macebearer is a shapely bicolor incomparabilis, an early bloomer that was injured somewhat by the sharp freeze of early March so that many of the stems bent over. Several other varieties whose buds were six or more inches tall at the time suffered similarly. Masterpiece, on the other hand, escaped all injury because it is a late bloomer, a bicolor Barrii that did not open its first buds until April 25. They make a very attractive pair.

Expectation is an intriguing flower because of the bright pink edge of the cup. One of the best of the small-crowned Leedsis, late, tall, and of largest size it makes a fit companion to Nelly which, however, lacks the pink-edged cup.

The Triandrus hybrid Thalia was admired by all. It has sufficient height and size to make it valuable for cutting and, as there are from two to four flowers on a stem, only a few are needed to make an effective bowl or vase.

#### SOME OUTSTANDING VARIETIES

Judged by the comments of visitors the outstanding varieties were Galopin, Therapia, Warlock, Calif, and Nobility. The latter was registered with the Royal Horticultural Society in 1928, the others in 1927. All are large, bold, tall things of excellent

substance, remarkable color, and remained long in good condition—about three weeks. Calif is an early yellow incomp., with brilliantly colored solid orange crown. Warlock is an early bicolor incomp. with an expanded crown of bright orange red shading to gold at the base. Galopin is a midseason bicolor incomp. which, because of its very large intense solid red crown, makes a lasting impression. It, like the others, appears to be a rapid increaser.

Nobility and Therapia are bicolor Barriis with large flat cups. The former has an orange-red cup that is very beautiful in the newly opened flower but which loses its intensity as the flower ages, whereas Therapia, which has a bright yellow cup broadly margined with bright orange red, holds its color as long as the flower lasts.

Sarah Bernhardt, a Dutch introduction of 1930, is a big, bold, upstanding white trumpet of fine quality and substance. It holds its head up and looks right at you. The color of the trumpet is unusual—a remarkable buff.

Alceste promises to supplant Great Warley which is possibly the best of the moderate-priced big bicolor incomp. It has better substance, broader, flatter, more overlapping perianth segments, and a rich yellow crown.

Golden Beauty is notable among the bicolor trumpets because of the rich dark yellow trumpet, the darkest yet seen. Of medium size and height it should prove valuable because of its good quality and strong contrast.

Robin Hood is another recent Dutch introduction that has more orange in the trumpet than any Ajax yet seen. Moreover it is of excellent form and quality.

EDWIN C. POWELL.

Maryland.

## The Reward of Design

In much of the propaganda for professional landscape design — especially in its popular phases—the treatment of the typical small property is represented as purely an artistic project, and beauty in the domestic environment as simply a matter of design. Design is offered as the formula for beauty. Unless design control the scene, no hope is held out for beauty of a high order. A clear antithesis is drawn: Design, or utter darkness. The exhortation is: Design—not trees and flowers; Designers—not Plantsmen.

It would seem that, for an artistic profession, the designers maintain rather an emphatic and shrill market cry, such as one does not associate naturally with the dispensation of the Fine Arts. Delightful as the things are which designers do with proper projects—this sort of propaganda, this type of sales-appeal which, under the license of literature, enjoys the freedom of the gardening press, jars upon the senses. It ranks, for quality of thought, with listerine and cigarette advertising. It has the shadow of ostracism in it—of the double chin. "Reach for a Designer—instead!"

Beauty of a high order about homes and villages existed long before the landscape profession did. For this we need not rely, vaguely, upon our intuition. We find definite indication to this effect in literature and in the art galleries. Poets and painters and novelists have rendered competent proof of beauty about homes and villages created without benefit of professional or expert design.

It may be well to remember that this type of beauty which has won the high praise of the Arts is not to be

lightly thought of as utter darkness and also that the pure design-values which the landscape profession would substitute for it has not, thus far, gained any such high commendation. For, no matter how magazine editors enthuse over the scrupulously designed home or village, no matter how lovingly they photograph it or how expensively they feature it—the poet, the painter and the novelist will not touch it with a ten-foot pole. The designers may be securing a place for us in the better magazines but they are not earning or consolidating a place for us in literature or in the art galleries.

Their conception of landscape beauty about the modest home and in the village differs widely from that of the poet, the painter and the novelist. If we will but compare their versions we will discover in our towns and villages a truer antithesis than that which the designers so fondly present—a contrast, not between design and utter darkness, but one between beauty made by expert hands and beauty seen by enlightened eyes—a contrast between beauty consisting purely of design-values and beauty of a complex, largely dramatic nature; a contrast between the professional accomplishments of beauty-specialists and that flower-like manner of beauty which springs ever, inevitably, from the footprints of man, in the paths of his normal pursuits.

It is not that the Seers—the poet, the painter and the novelist—are intolerant of design-values. Only, it seems that their appreciation of these values varies with different types of subjects and depends on the manner in which these values are introduced and on the relation in which they

function to other high values inherent in the subject. They appear to sense a subtle distinction between types of subjects in which design-values rank uppermost and other subjects in which other values have precedence. It would seem that in the latter type of subjects they include what may be termed broadly the popular domestic environment, all the way from the domestic interior to the village scene.

It would seem that the thought of the domestic environment as purely and simply an artistic project is not compatible with their dramatic understanding. To them it represents a blend of varied values, artistic and other. They look for the things of man's own making and choosing, for his natural and homely ways—for the paths worn by man himself. These they reveal to us as rich in beauty and they would not have them obscured by the patterns of design. They seek out Man, asserting himself freely in the peculiar manner of his kind, his day, his place. When they find, instead, Designers asserting themselves, and Man reduced to a sort of neutral background for the professional dispensation of design—*Ichabod*,—the glory is gone in their eyes.

Let us not reach too hastily for a Designer—instead—without considering the alternative. In particular cases the designer may be better choice. It is not possible to suggest a line of demarkation between cases. But in the aggregate, as a nation of homes and villages, the choice before us is not the superficial one suggested by the Landscape Profession—not one between designers and tradesmen, but one, rather, between designers and—poets and painters and novelists. We are either for the designer or for the painter. Our reward is with one or the other. So far as the domestic

environment is concerned there appears to be no common pasture for the designer and the dramatist.

In the great past periods of domestic decoration painters have delighted in design-values contributed by craftsmen and tradesmen to one or other local genre in a proper, reverent manner. But they cannot brook the supremacy, the control of professional design in the domestic scene.

The spirit of Cape Cod, in the original, as a mode of life, as a dramatic value, lures the novelist but when it is reproduced professionally in Illinois—reduced to a mode of design, it leaves him unmoved.

Let the designers—the beauty specialists—observe, and humble themselves before tradesmen, that the villages which poets and painters and dramatists exalt are those in which the normal wants of the people, of Rose and Lilac and Hawthorne, are supplied without much benefit of design by the village nurseryman. But if the entire Bostonian Landscape Hierarchy conspired to design a little town, and the Angel Gabriel himself came down to execute the plans—the results would get no nearer to an Art Gallery than a front page of *Smarm*.

P. J. VAN MELLE,  
Poughkeepsie, N. Y.

#### *Nierembergia frutescens* Dur.

To many gardeners who have delighted in *Nierembergia rivularis* it will be a glad surprise to know that this family also furnishes an equally pleasing species suitable for the border. The subject of these notes is a native of Chile and is hardy as far north as New York and as it self sows profusely it would probably come up each spring even further north.

It is a light lacy bush, in my garden growing to two feet but it is said to reach three in damper soil, rather resembling the blue flax both in the manner of its growth and in its foliage. The narrow leaves are slightly over half an inch in length and of a soft grey-green; as the foliage is not dense it forms an open lacy effect which casts so little shadow that for the last two seasons I have been using it as a companion plant for tall bearded iris and find that it does not hurt the iris in the least and provides continuous bloom after the irises are over.

The salver-shaped flowers also resemble the flax except that they are larger, one and a quarter inches across to be exact, and are of milk-white more or less rayed and flushed with lavender which deepens into the throat which is of soft yellow. Some of the plants will have much darker blossoms than others and although mine the first season were quite uniform in depth of color for the last two years there have been several pure white ones among. There is also a deep violet form, *var. atrovioleacea*, with deep rich color which is thrown into more brilliancy by having a brighter yellow in the throat. This dark form does not grow so tall and the flowers are not quite as large as in the type. As I have had this violet form only through one summer I do not know how well it will self sow itself.

The plants are constantly in flower from the time they start at the end of May until late in October and are at times so crowded with blossoms as to look like a pale blue cloud. Everyone who sees it immediately asks for seed but so far none of us have been able to gather any yet each spring since we have had them there have been hundreds of seedlings around the old clumps. Another thing in its favor is that it makes a very small root growth and so is easily transplanted or pulled up from where it is not wanted. Even two year old plants do not seem to have a wide root run. In the past two summers with their scorching heat and small rain fall it has been the one steady bloomer in the garden.

It makes a charming cut flower either sprays of it alone or in combination with larger flowers much in the manner one would use a glorified babys-breath.

ALFRED BATES.

New Jersey.

#### CORRECTION

On page 185 of the July issue, in Mr. Senior's article, Campanulas for the Rock Garden, the word *Phyteuma* was omitted, as a sub-heading immediately after the paragraph concerning *Wahlenbergia*.

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